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Maintenance Practice for the 704A Wide Band Test Set and 705A Dial and Hold Unit

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MAINTENANCE PRACTICE

for the

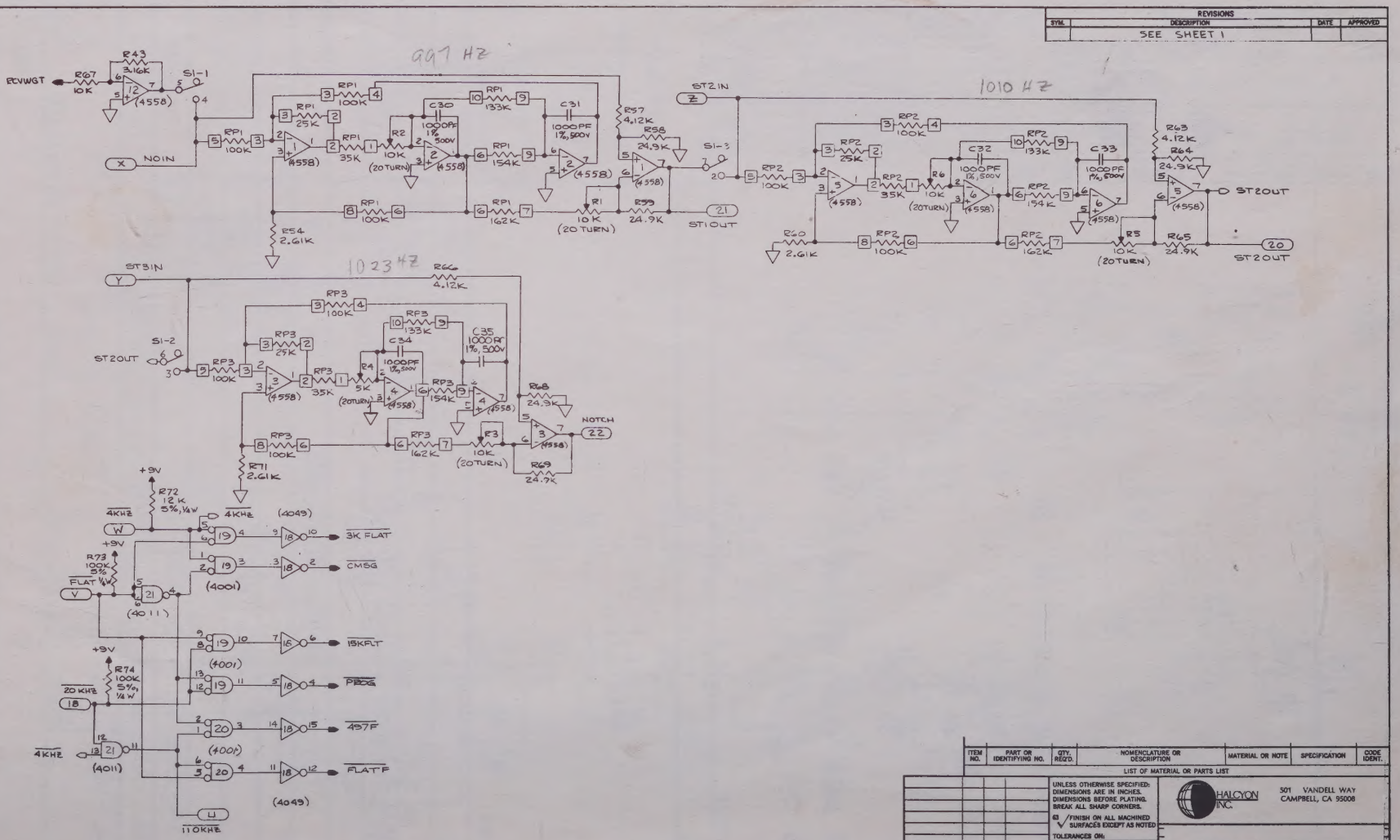
704A WIDE BAND TEST SET

and

705A DIAL AND HOLD UNIT

Reorder Part Number – 4200-0024-01
Printed 2/80
Original Issue

HALCYON
#1 Halcyon Plaza
2121 Zanker Rd.
San Jose, CA. 95131
(408) 293-9970



ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.

63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:

DECIMALS

ANGLES ±1°

HOLES (DRILL) +.003 -.005

FINISH:

NEXT ASSY. | QTY. NEXT | QTY. FINAL | MODEL NO.

HALCYON INC.
501 VANDELL WAY
CAMPBELL, CA 95008

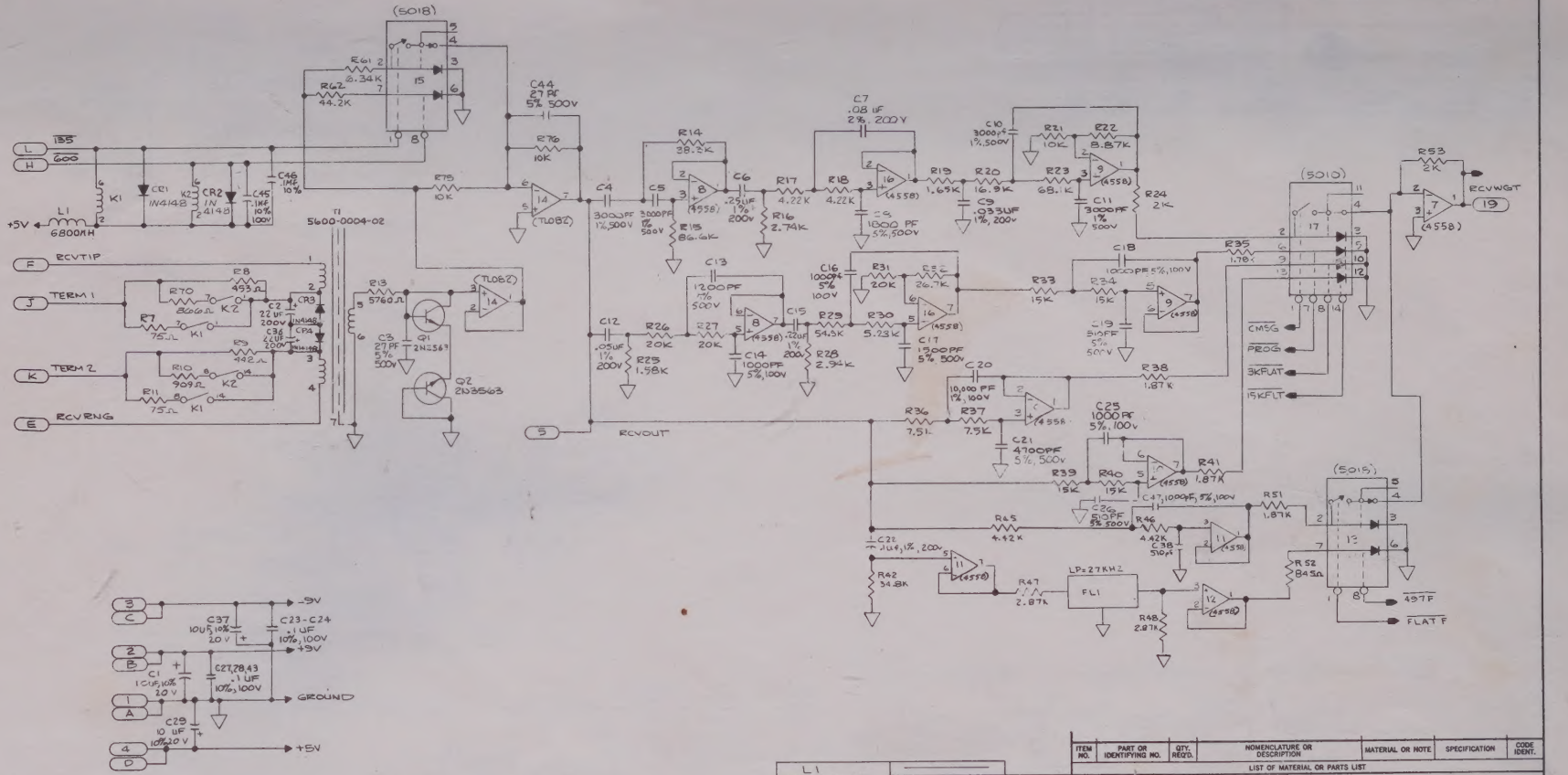
RECEIVE BOARD
(704)

DATE – | BY – | APPROVED – | APPROVED –

SIZE D | DRAWING NO. SD-0002-88 | REV. D

SCALE – | STOCK AS – | SHEET 2 of 2

REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED
A	PROTO. / PRODUCTION RELEASE	11-2-77	SBE
B	REVISED PER ECO #00672	1/24/78	
C	REVISED PER ECO # 00882	2-28-78	
D	REVISED PER ECO#00961	DW 7-25-78	



1. ALL RESISTORS ARE IN OHMS 1/8W, 1%

NOTES - UNLESS OTHERWISE SPECIFIED:

L1	
FL1	
K2	
S1	
T1	
RP3	
IC21	
CR4	
C47	C39-42
Q4	
R76	R12 44 49 50 55 56
LAST USED	NOT USED
APPLICATION	

ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.
LIST OF MATERIAL OR PARTS LIST						

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.

√ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:

DECIMALS

ANGLES ±1°

HOLES (DRILL) +.003 −.001

FINISH:

HALCYON INC. 501 VANDELL WAY CAMPBELL, CA 95008

RECEIVE BOARD (704)

DATE	SIZE	DRAWING NO.	REV.
12-7-76	D	SD-0002-88	D

BY

APPROVED

APPROVED

SCALE — STOCK AS 8000 SHEET 1 OF 2

704A

NEXT ASSY. QTY. NEXT QTY. FINAL MODEL NO.

HYCYON

ENGINEERING CHANGE ORDER

ECO NO. [illegible]

SHT 1 OF [illegible]

ORIGINATOR	DATE	CHECKED BY	DATE	MODEL(S) AFFECTED	LOT NO.
J. ZUMBAHLEN	6-20-81	[signature]	6-29-81	704	37

DOCUMENTS AFFECTED

TITLE	DWG NO.	NEW REV
MITTER BOARD (704)	SD-0002-95	F
	ED-0002-95	E
	8000-0002-95	F
MITTER BOARD (704)	P-0002-95	F

APPROVALS

DEPT	SIGNATURE	DATE
ENG.	[signature]	29 JUNE
MFG	[signature]	29-JUNE
PC	[signature]	6-30
QA	[signature]	6-30
CS		
INC BY:	S BONNOT	12-1-82
CKD BY:	[signature]	2-10-82
DOC	[signature]	2-11-82

REASON FOR CHANGE

DISPOSITION

MANDATORY	X
SCRAP	✓
RE-WORK	
PHASE-IN PROD	
DOC. CHG. ONLY	

ECO NO. REFERENCES NONE

DESCRIPTION OF CHANGE

1. SD-0002-95
   A. REVISE PER ATTACHED RED LINE DRWG.

ED-0002-95
8000 0002 95
P-0002-95
A. REDESIGN PER SD-0002-95

REMARKS

FEB 11 1982

CHANGE NOTICE

MAINTENANCE PRACTICE
for the
704A WIDE BAND TEST SET
and
705A DIAL AND HOLD UNIT

Part Number: 4200-0024-01	Original Issue	Printed: 2/80

CHANGE DESCRIPTION: The following changes are applicable to the above manual.

1. Page 21, paragraph 4.23, step (f); change "....switches to 84." to "....switches to 82".

2. Page 21, paragraph 4.23, step (i); change "...switches to 80." to "...switches to 78."

3. Page 21, paragraph 4.23, step (k); change "...switches to 76." to "...switches to 74."

HALCYON

704A/705A MP
Change Notice 1
2 July 1980

1 Halcyon Plaza ● 2121 Zanker Road ● San Jose, CA 95131 ● (408) 293-9970

MAINTENANCE PRACTICE
for the
704A WIDE BAND TEST SET
and
705A DIAL AND HOLD UNIT

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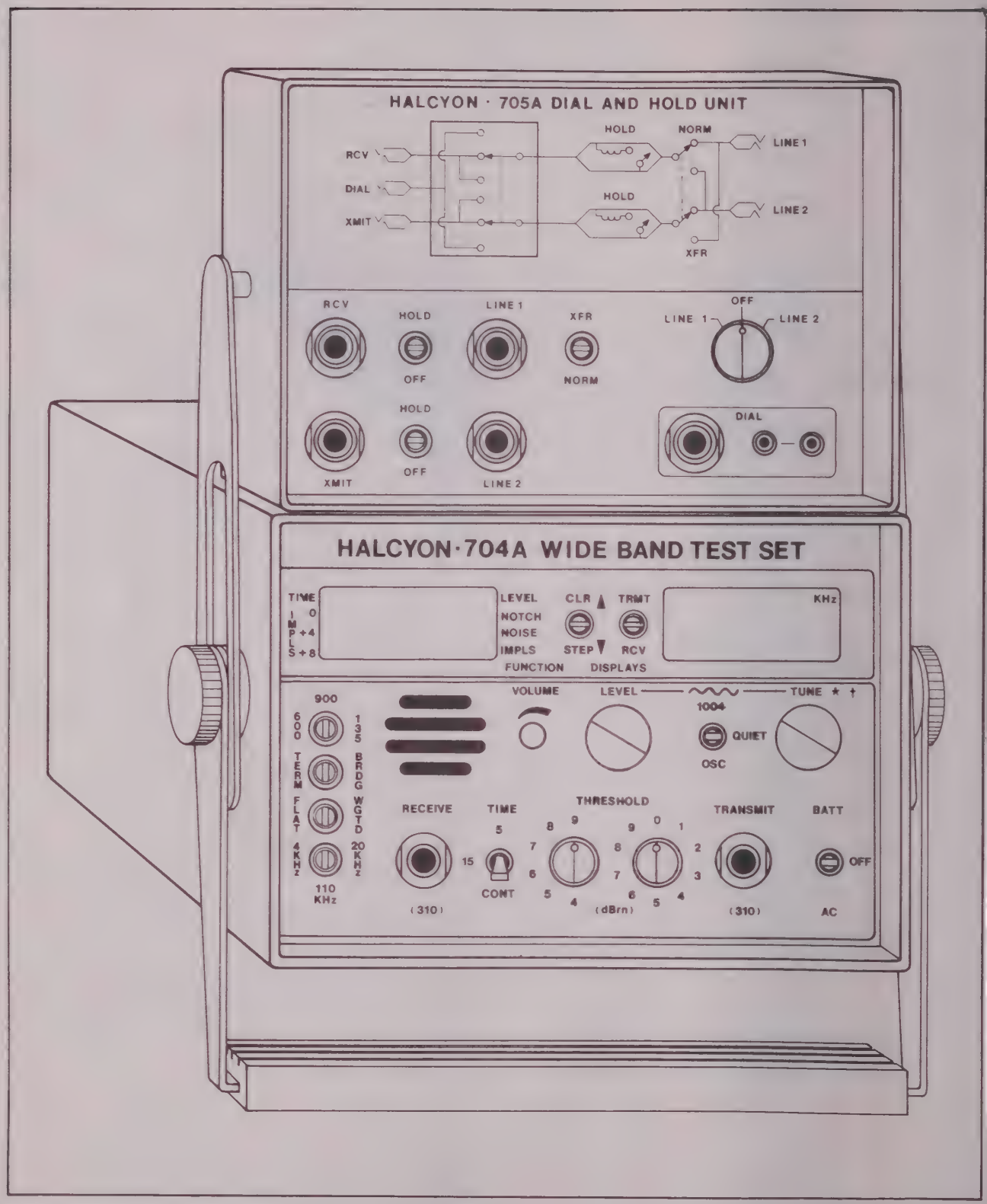

Figure 1. 704A Wide Band Test Set with 705A Dial and Hold Unit

1. GENERAL INFORMATION

1.01 The Halcyon 704A Wide Band Test Set measures a variety of paramaters on both voice and data circuits. It has a frequency range of 110 kHz and provides digital readouts for the following measurements:

- Transmit or Receive Level,
- Transmit or Receive Frequency,
- Noise (Idle-Channel and Notch), and
- Impulse Noise.

The 704A contains a fixed oscillator and a variable 50 Hz to 110 kHz oscillator. Five noise weighting filters are available for noise measurements, and a notch filter is provided for notch noise measurements. Impulse noise is measured for three thresholds. The lowest threshold is set by the user and the others are set 4 and 8 dB higher.

1.02 The 705A Dial and Hold Unit operates with the 704A. It may also be used to provide two-line dial-and-hold capability for other Halcyon 700-Series instruments. The 705A requires no power and fits into the cover of the 704A.

2. PERFORMANCE SPECIFICATIONS

2.01 General:

• Input Impedance	135 ohms, 600 ohms, 900 ohms, and bridging (>20 kohms).
• Output Impedance	135, 600, or 900 ohms.
• Output Level	-40 dBm to +13 dBm.

2.02 Level Measurement:

• Level Range	-50 dBm to +13 dBm.
• Frequency Range	50 Hz to 110 kHz.
• Resolution	0.1 dB.
• Accuracy	+/-0.1 dB, 200 Hz to 4 kHz; +/-0.2 dB, 2.5 kHz to 15 kHz; +/-0.5 dB, 13 kHz to 110 kHz.
• Detector Type	Average.

2.03 Noise Measurement:

• Level Range	10 to 99 dBrn.
• Frequency Range	Dependent on weighting network selected.
• Weighting Networks (Switch Selectable)	C-message, 3-kHz flat, Program, 15-kHz flat, 50 kbit.
• Notch Filter Attenuation	-50 dB, 995 to 1025 Hz.
• Resolution	1 dB.
• Accuracy	+/-1 dB
• Detector Type	Quasi-rms

2.04 Frequency Measurement:

• Accuracy/ Resolution	50 Hz to 4 kHz,1 Hz; 4kHz to 110 kHz, 10 Hz.

2.05 Impulse Noise Measurement:

- Weighting: Any weighting network.
- First Threshold: 40 to 99 dBrn, in 1-dB steps.
- Second Threshold: +4 dB.
- Third Threshold: +8 dB.
- Timer: 5 min, 15 min, or continuous.
- Counter Capacity: 999.

2.06 Power Requirement: 115/230 V ac, 50/60 Hz.

2.07 Battery Operation (Optional):

- Battery Type: NiCd.
- Operating Time: 4 hrs (typical).
- Recharge Time: 8 hrs (typical).
- Discharge/Recharge Cycles: 2000 (typical).

2.08 Operating Temperature: 0° to 50° C.

2.09 Size:

- Height: 5 in (12.7 cm).
- Width: 7 in (17.8 cm).
- Depth: 12 in (30.5 cm).

2.10 Weight: 9.6 lbs (4.4 kg): add 1.5 lbs (0.69 kg) for batteries and 1.2 lbs (0.55 kg) for 705A.

3. THEORY OF OPERATION

A. General

3.01 Figure 2 is a block diagram of the major sections of the 704A. Each of these sections is expanded by a detailed block diagram. The major sections of figure 2 are functional blocks and do not correspond to physical blocks in the actual unit. The physical locations of all major components are listed in the detailed block diagrams. For example, a block labelled IC17 288 refers to integrated circuit chip 17 shown on schematic diagram SD-0002-88 and assembly diagram ED-0002-88. Refer to section 5 for the schematic diagrams. Broad lines in the block diagrams represent multiple related signals.

B. Oscillator and Transmitter (Figure 3)

3.02 VCO. The frequency of the VCO is controlled by the 4 kHz/110 kHz/20 kHz frequency range switch and the TUNE control. The TUNE control potentiometer output controls two current sources through a switched-gain amplifier (IC4, 7) and a buffer (IC4). One current source controls the down ramp of the symmetrical triangular wave output of the VCO; the other current soruce controls the down ramp. The frequency range switch selects the VCO range by switching the timing capacitors.

3.03 Sine Wave Shaping. The sine wave shaping circuit converts the VCO triangular waveform output into a sine wave by means of a diode network. The diodes are biased and conduct at programmed points of the input waveform to change the transfer function of the shaping circuit. The switched-gain amplifier (IC3, 8) compensates for the decreased output of the shaping circuit at high frequencies.

3.04 Oscillator Select. The 1004/QUIET/OSC switch controls the oscillator select unit, which is an IC dual analog

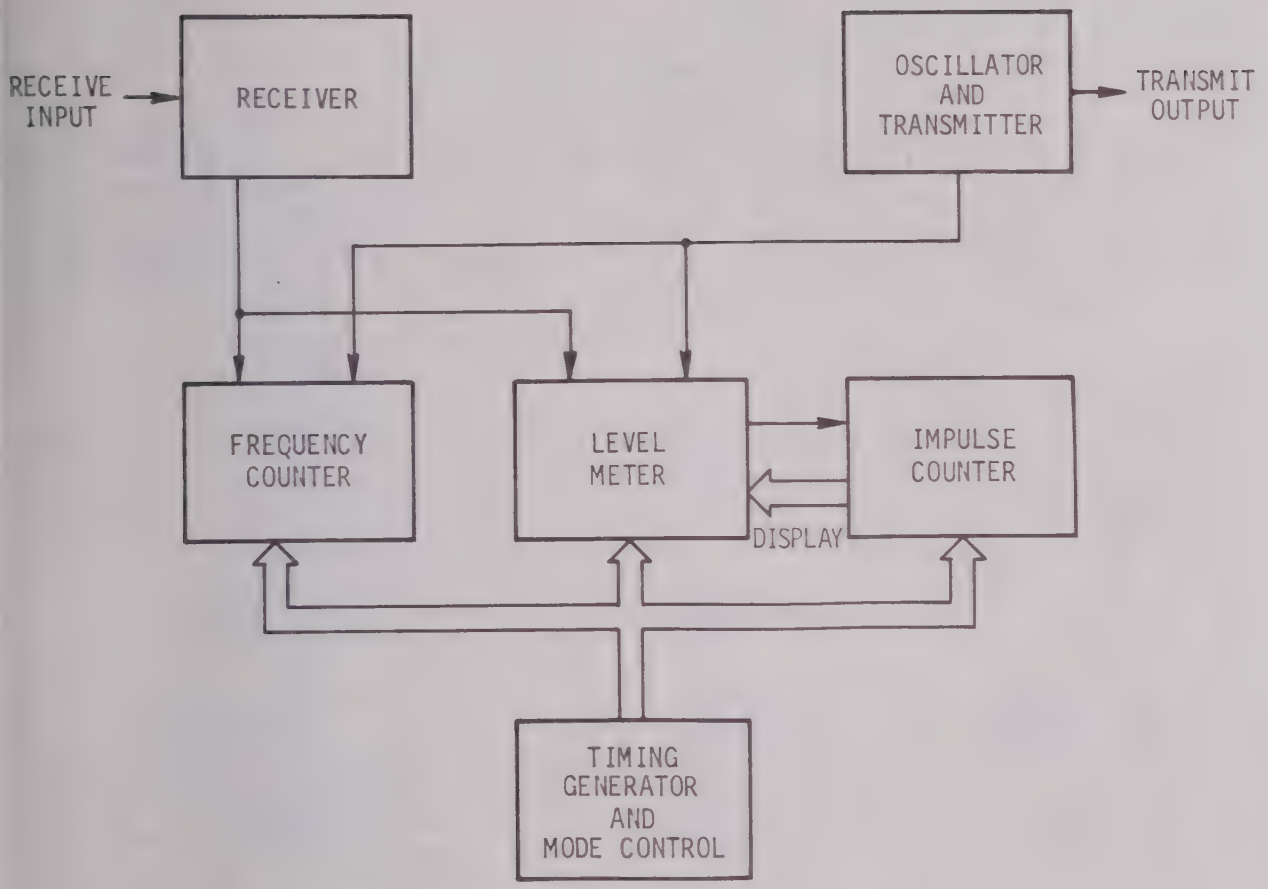

Figure 2. General Block Diagram

switch. The selected oscillator signal is amplified by IC14, attenuated by the LEVEL control, and buffered by IC14. The gain of the switched-gain amplifier (IC11, 12) is selected by the termination switch to provide constant signal power across the output terminating resistor.

3.05 Transmitter. The transmitter input is connected either to the oscillator or to ground by the quiet select unit, which is controlled by the oscillator switch. When the switch is in the QUIET position, the transmitter is disabled. Otherwise, the oscillator signal is selected and passes through a filter, power amplifier and transformer to appear at the TRANSMIT jack. The output termination is selected by relays K1 and K2, which are controlled by the termination switch.

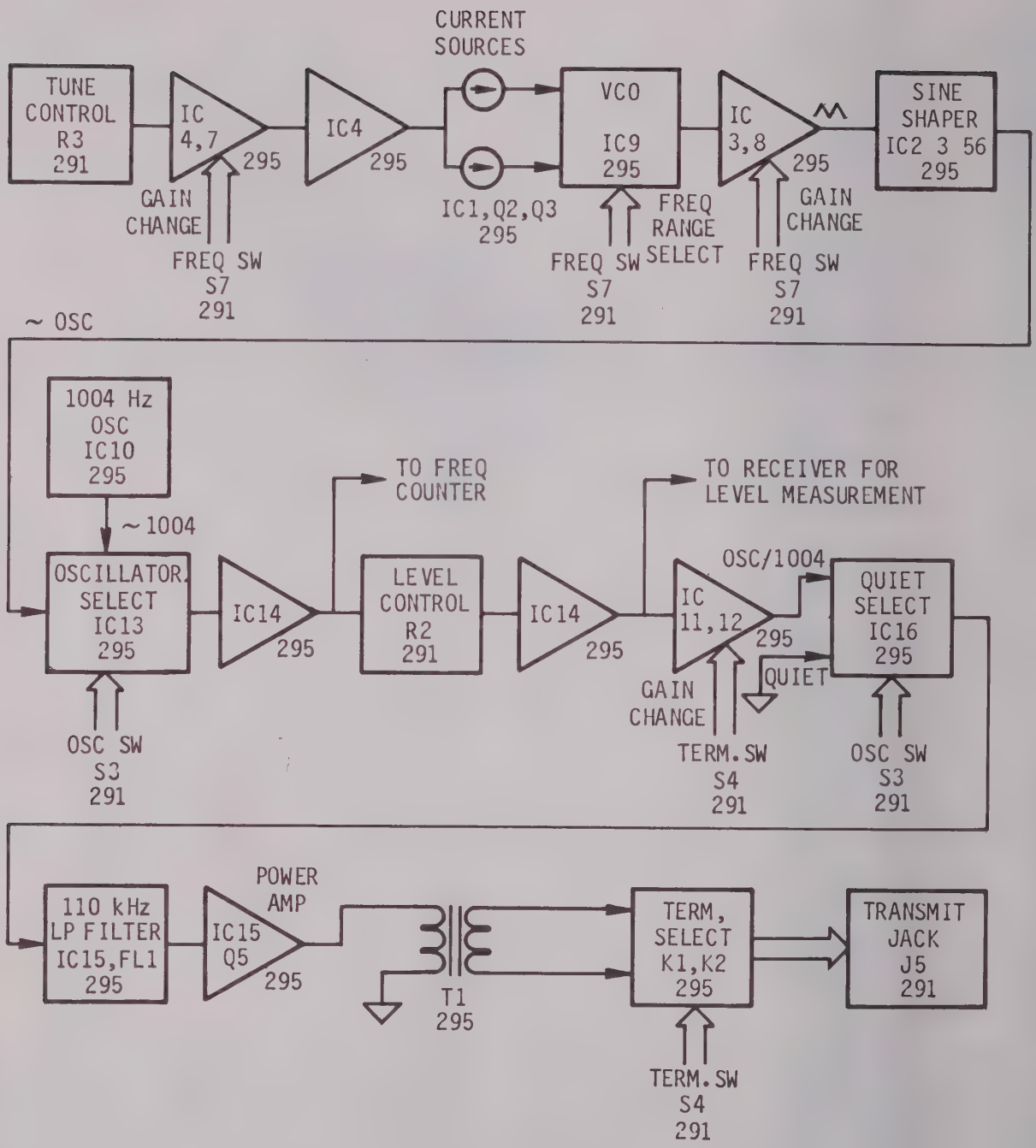

Figure 3. Oscillator and Transmitter Block Diagram

. Receiver (Figure 4)

.06 Input Circuits. The input termination is determined by relays K1 nd K2, which are controlled by the ermination switch. The termination witch also changes the gain of amplifier IC14, 15 to compensate for the oltage change when the input termination is changed.

.07 Filters. Filter select A selects one of the following filters:

FILTER	MEASUREMENT
C Message	4 kHz weighted noise
Program	20 kHz weighted noise
3 kHz	4 kHz unweighted noise
50 kB/s	110 kHz weighted noise

he filter select logic translates the signals from the control switches into signals that select the proper filter.

3.08 Filter select B selects one of the following:

(a) The output of filter select A,

(b) The output of filter select A passed through a notch filter,

(c) The unfiltered receiver signal, or

(d) The unfiltered transmitter signal.

The output of filter select B goes o the level meter. An AGC amplifier reduces the level variations in the filter output to drive the frequency counter and audio monitor.

D. Timing Generator and Mode Control (Figure 5)

3.09 Frequency Dividers. The 1 MHz crystal oscillator output is used by the level meter counting circuits. It is also divided by 1000 to multiplex the counter digits onto the display decoder input lines. The 1 kHz signal is also divided by 10 to obtain a 100 Hz signal. This signal is in turn divided by 12 using two separate counters; one counts on the positive edges of the 100 Hz signal; the other counts on the negative edges. Therefore the two counters are out of phase by half of the input period. The output of one counter is divided by 10 for use by the autorange circuit in the level meter.

3.10 The 1 MHz oscillator signal is fed to a clock divider, which produces one pulse per minute for use by the impulse counter timer.

3.11 Timing Logic. Figure 6 shows the timing signals produced by combinations of the two divide-by-12 counters. Both counters count in binary until C.D resets both counters. The figure shows the logic equation for each signal. These signals will be explained fully in the frequency counter and level meter descriptions.

3.12 Mode Control. The mode control functions as a seven-position switch, which is changed by pressing the STEP switch. The STEP switch increments the mode counter via the step control, which removes switch contact bounce. The seven states of the mode counter are decoded to produce the mode control signals. The selected mode is shown by LED indicators.

E. Frequency Counter (Figure 7)

3.13 Input Circuits. The input signal is filtered by the 15 kHz or 110 kHz filter depending on the setting of the frequency range switch. The amplified signal is then converted to a digital signal by the clipper. The multiplifer select unit selects either the clipper output or the output of a X10 frequency multiplier. The clipper output is used directly for the 20 kHz and 110 kHz ranges to provide a resolution of 10 Hz for a count period of 0.1 second. The multiplier is used for the 4 kHz range and makes a 1 Hz resolution possible. The multiplier consists of a VCO, phase-locked loop, and a divide-by-10 counter. The X10 signal is divided by 10 and compared with the input signal to correct the VCO frequency.

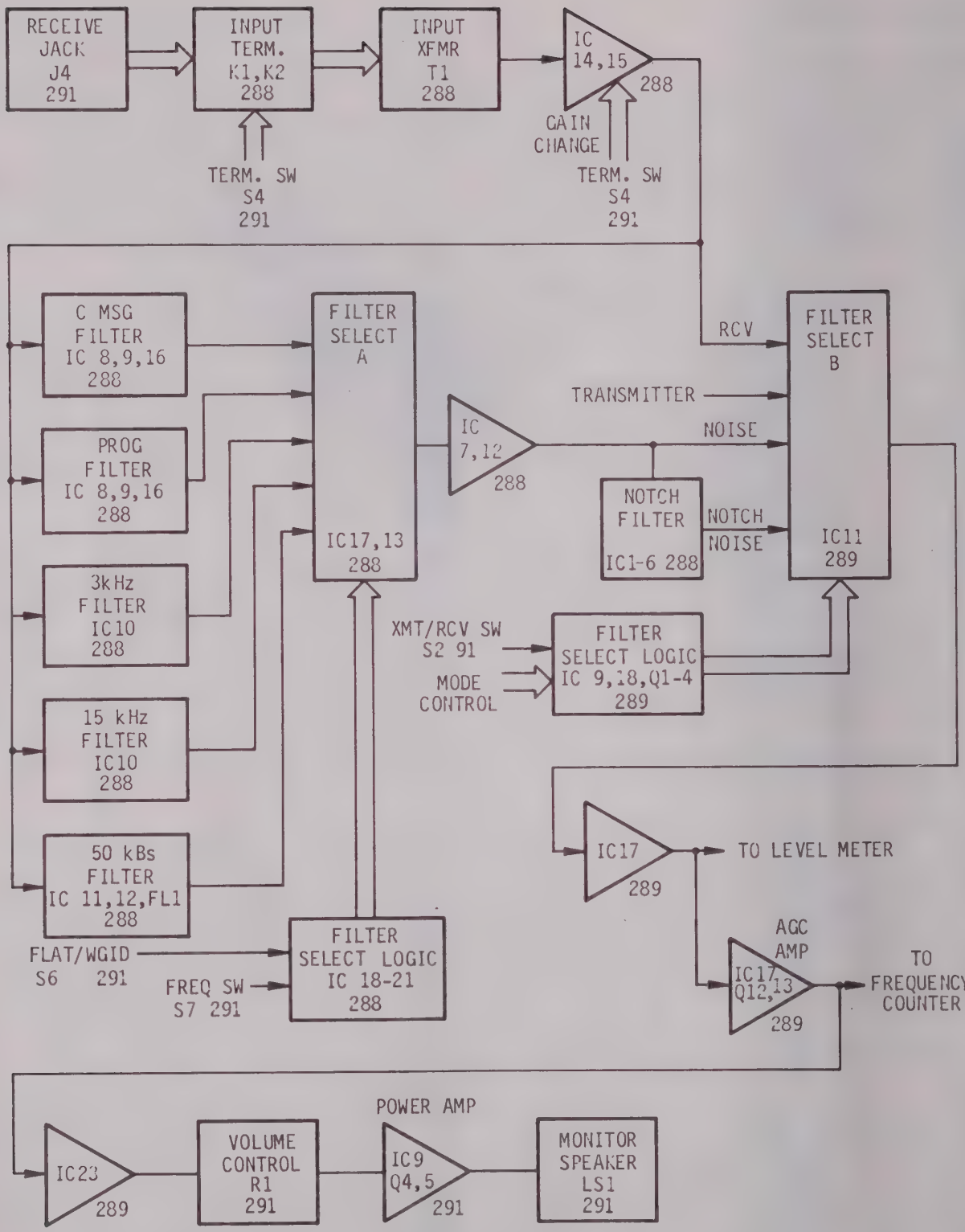

Figure 4. Receiver Block Diagram

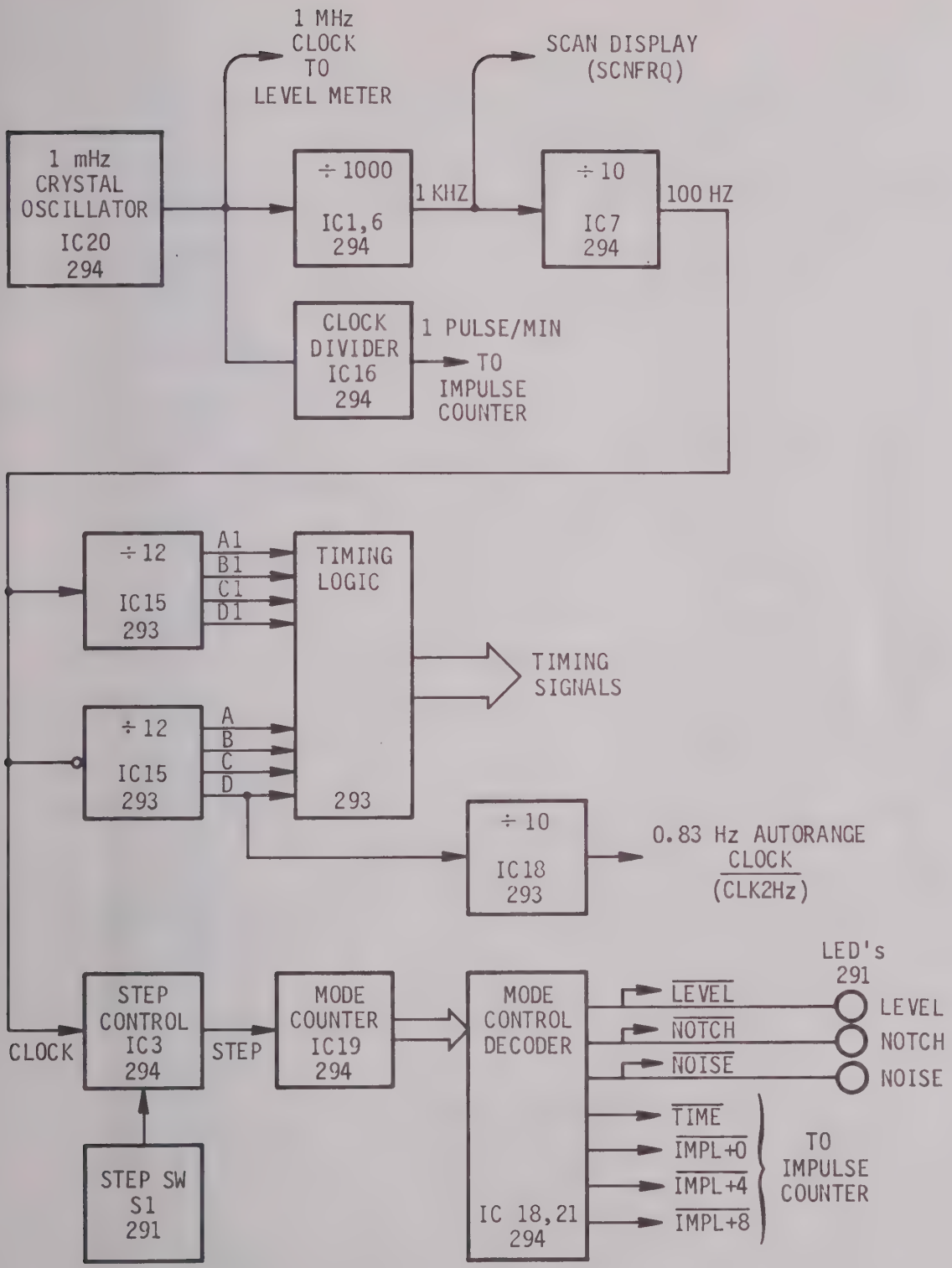

Figure 5. Timing Generator and Mode Control Block Diagram

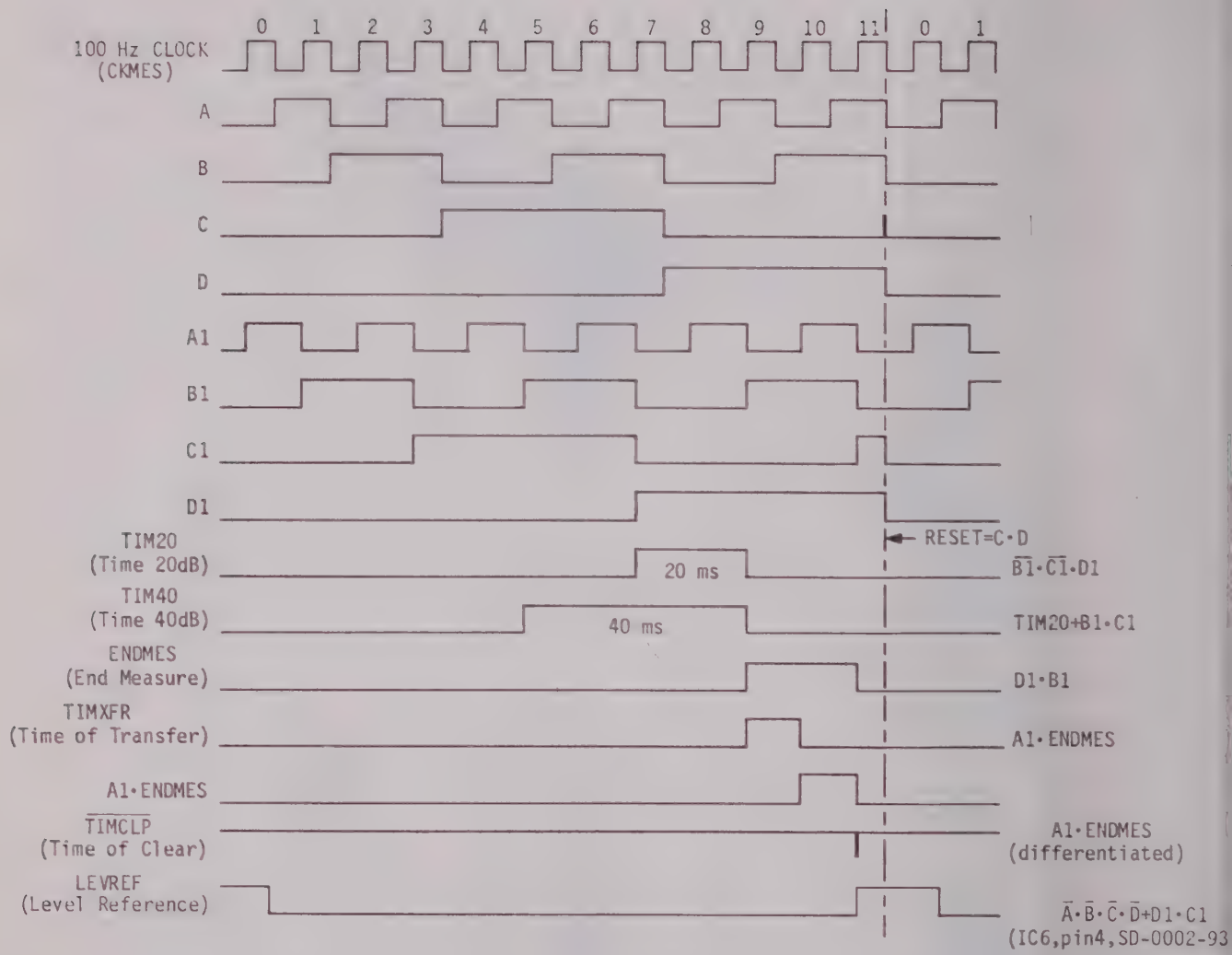

Figure 6. Timing Signals

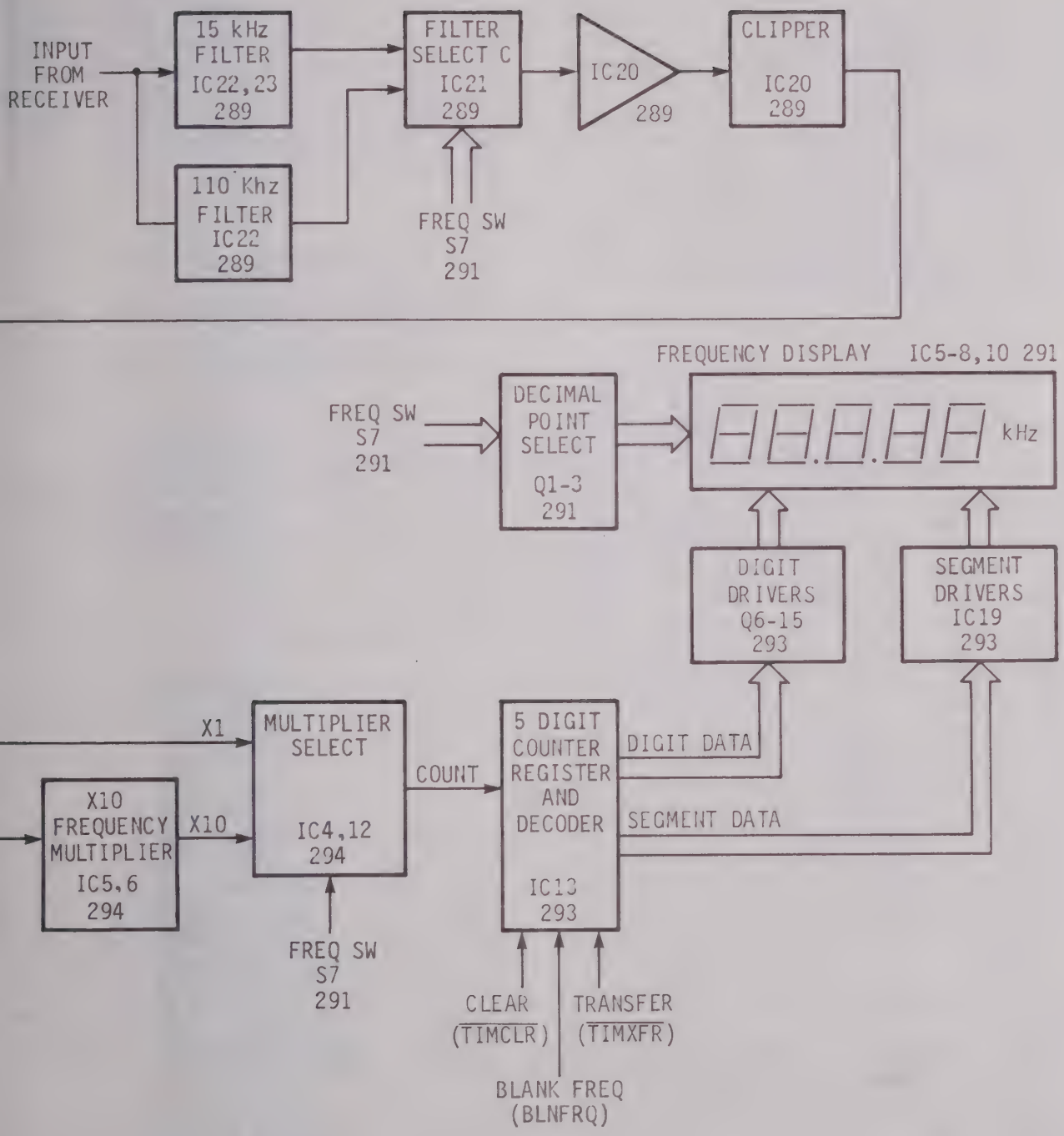

Figure 7. Frequency Counter Block Diagram

3.14 Counter and Display. The frequency count cycle begins with a time of clear (TIMCLR) pulse, which clears the 5-digit counter. The input signal is counted for 100 ms. The time of transfer (TIMXFR) signal then transfers the counter contents to a storage register. The contents of the register are scanned one digit at a time by a seven-segment decoder. As each digit is scanned, one of five digit lines is activated to indicate which is being scanned. The counter, storage register, decoder, and scanning logic are all contained in IC13.

3.15 The display is driven by the digit and segment outputs of the counter unit through driver transistors. The display is multiplexed so that only one digit is activated at a time, but the scan rate is fast enough to make all digits appear to be activated simultaneously. The cathodes of corresponding segments of all digits are wired together. The common anode of each digit is driven by its respective digit line. Therefore, any given segment of the display is lit by a coincidence of the segment driver and the digit driver. The decimal point location is determined by the frequency range switch: The 4 Hz position gives XX.XXX kHz; the 20 kHz and 110 kHz positions give XXX.XX kHz. The display is blanked by the blank frequency (BLNFRQ) signal for any noise measurements or when the switches are set to TRMT and QUIET.

F. Level Meter (Figure 8)

3.16 Detectors. The input to the level meter comes from the receiver filter select B, which selects receiver noise, receiver level, or transmitter level. The signal is fed to an amplifier with a gain of 0 20, or 40 dB. The gain is set by the autorange signals. The selected detector output is filtered to yield a dc output.

3.17 Autorange Circuit. The dc output from the filter is compared with reference voltages that represent underrange, over-range, and out-of-range thresholds. The out-of-range comparator blanks the level display; the other two comparators drive the autorange gain switching logic. A two-bit counter stores the gain data and has the following states:

AGC40 (40 dB Gain) = Q1 (LSB)

AGC20 (20 dB Gain) = Q2 (MSB)

AGC20.AGC40 (0 dB gain)= Q1.Q2

The Q1.Q2 state of the counter is not stable because the counter resets whenever it occurs. The counter steps for any of the following conditions:

Over-range.AGC40

+ (Under-Range + Over-Range).AGC20

+ Under-Range.AGC20.AGC40

Note that the counter steps from the AG20 state for either over-range or under-range conditions. Each condition steps the counter to the Q1.Q2 state, which results in an immediate reset to the Q1.Q2 state. The under-range condition steps the counter once more to reach the AGC40 state. A 0.83 Hz signal (CLK2Hz) from the timing generator is used as a counter clock.

The amplifier drives an average detector and a peak detector. The detector select unit selects either the average detector output for level measurements or the sum of both detectors to form a quasi-rms signal for noise measurements.

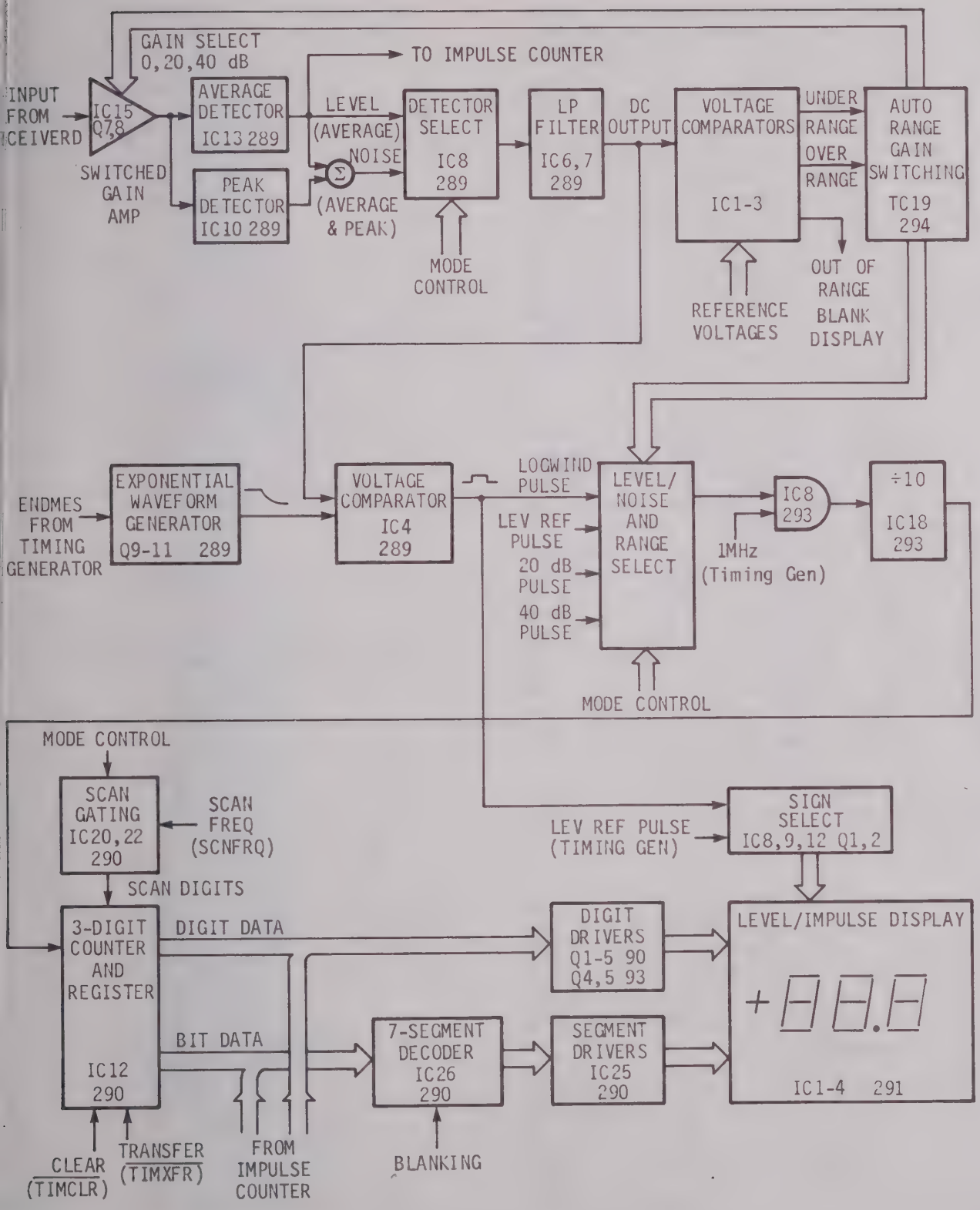

Figure 8. Level Meter Block Diagram

3.18 Figure 9 shows the gain-switching levels for a decreasing signal and an increasing signal. Note the 2 dB hysteresis between the levels for the two cases. This avoids excessive gain switching for signals that fluctuate at the gain boundaries. The hysteresis is provided by the voltage comparators. The under-range comparator turns on for input voltages less than 0.074 volts, while the over-range comparator turns on for inputs greater than 1.11 volts. The autorange gain signals are fed back to the input amplifier to set the gain. They are also fed to the level meter logic to provide correct display scaling.

3.19 Log Converter. Figure 10 shows the operation of the log converter. The end measure (ENDMES) pulse from the timing generator charges a capacitor to a reference voltage. At the end of the pulse, the capacitor starts to discharge through a resistor. The capacitor voltage is buffered by a high-impedance amplifier and compared with the dc voltage that represents the input signal level. The output of the comparator is high from the start of the ENDMES pulse until the capacitor voltage is less than the input voltage. The width of the comparator output is inversely proportional to the log of the input voltage. The pulse width is measured by a counter to obtain a digital dB reading.

3.20 Counter Logic. The log window (LOGWND) output pulse of the log converter is a window that gates 1 MHz clock pulses to the counter that drives the level display. Additional pulses may be added to correct the dis- play for the selected gain.

3.21 Negative dB Level Measurements. Figure 10 shows the timing for level measurements. The first case shown at the top of the figure is a negative dB level. The level window (LEVWND) signal equals LOGWND + LEVREF. The level reference (LEVREF) signal is a 15 ms pulse from the timing generator.

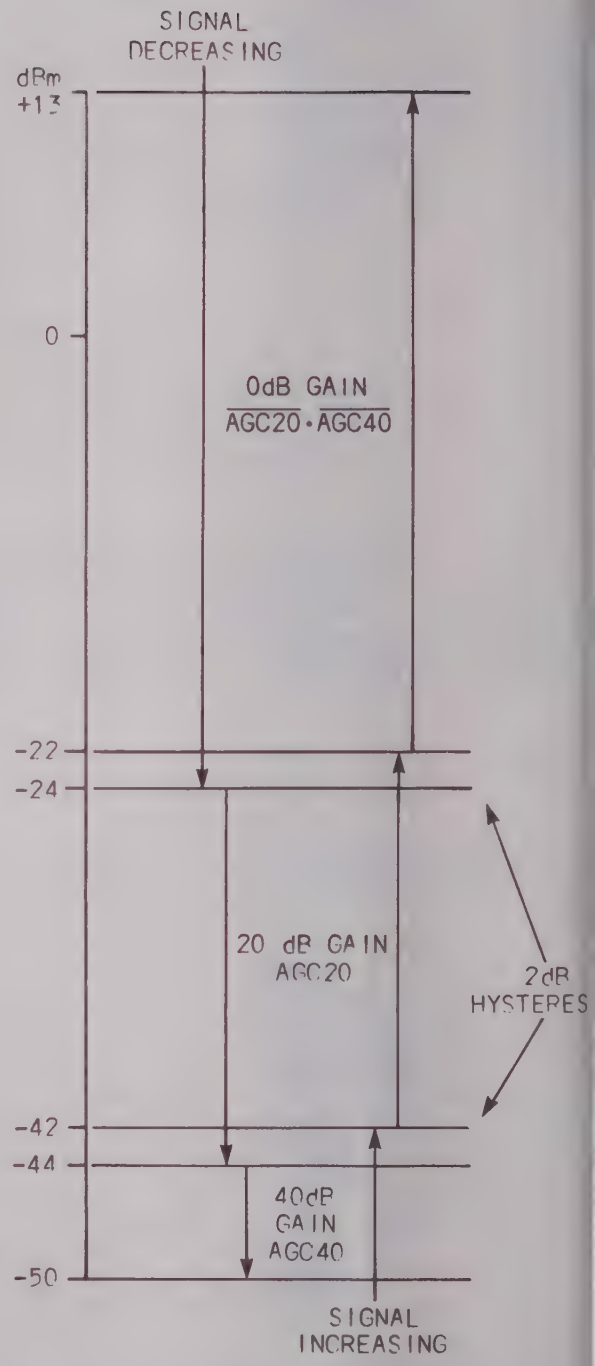

Figure 9. Autorange Gain Switching

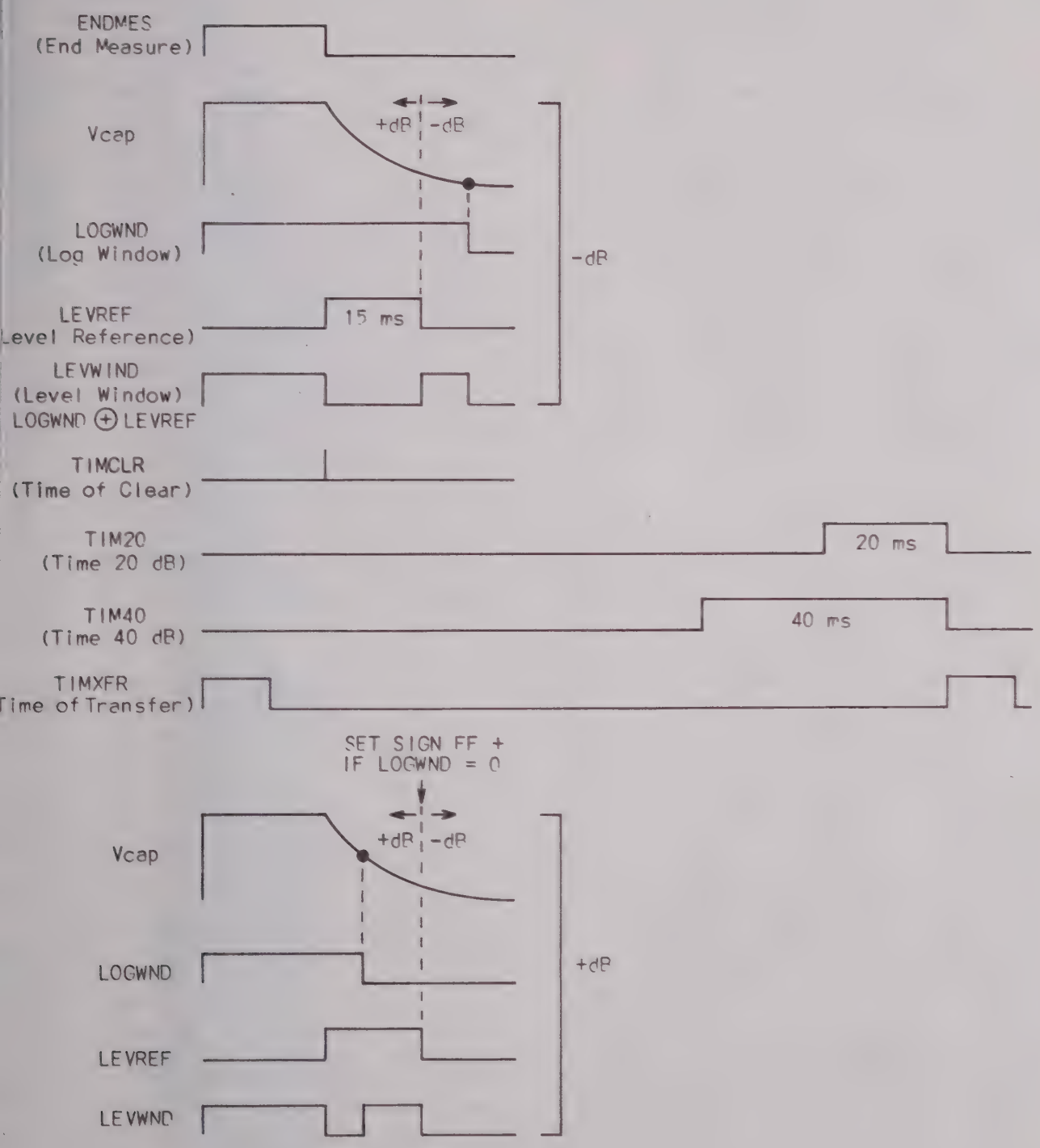

Figure 10. Log Conversion (Level Measurements)

The timing cycle begins with the clearing of the counter with TIMCLR. The counter input for level measurements is:

1 MHz.TIMXFR.(LEVWND+AGC20.TIM20+ AGC40.TIM40)

Only the portion of LOGWND that follows the end of LEVREF is counted. The portion during LEVREF is blocked by the exclusive OR; the portion before LEVREF is cleared by TIMCLR. Note that the count increases as the input level decreases. The count pulses are divided by ten and fed to the 3-digit counter. (The counter is actually a 4-digit counter; the least significant digit is not displayed. Therefore an additional division by 10 is provided by the extra digit.)

3.22 Display Scaling. Proper scaling of the display is provided by the TIM20 and TIM40 pulses. The 20 ms TIM20 pulse is gated by AGC20 to add 20,000 pulses to the count. Dividing these pulses by 10 twice results in a display of 200. Since the display is in tenths of dB, 20.0 dB is added to the measured level. The 40 ms TIM40 signal is used in a similar manner for 40 dB gain, and neither signal is used for 0 dB gain. The contents of the counter are transferred to a storage register at the time of transfer (TIMXFR) pulse.

3.23 Positive dB Level Measurements. The second case shown at the bottom of figure 10 is a positive dB level measurement. The counter is enabled from the end of LOGWND until the end of LEVREF. Note that the count decreases as the input level decreases. The sign of the display is determined as FF, which is turned on to indicate a positive sign if LOGWND is low at the end of LEVREF. The displayed + sign is formed by a combination of the minus sign and a vertical line.

3.24 Noise Measurements. Noise measurements are displayed in reverse notation (dBrn): 0 dBm corresponds to 90 dBrn, and -90 dBm corresponds to 0 dBrn. Figure 11 shows the timing. The noise window (NOIWND) signal equals TIM40.LOGWND+A1.ENDMES. (The A1. END MES term will be explained later.) The timing cycle begins with the clearing of the counter with TIMCLR. The counter input for noise measurements is: 1 MHZ. TIMXRF.(NOIWND+TIM20.AGC20+TIM40. AGC20. AGC40). Figure 3-10 shows that NOIWND enables the counter from the end of LOGWND to the beginning of TIM40. Note that the count decreases as the noise level decreases. Proper display scaling is provided by adding the TIM20 pulse for the 20 dB gain range, TIM40 for the 0 dB range, or neither for the 40 dB range. The TIMXFR signal transfers the counter contents to the storage register. The counter requires at least one additional count pulse to transfer the counter contents. This requirement is met by the A1.ENDMES term in the above equation for NOIWND.

3.25 Level Display. The operation of the level display is similar to that of the frequency meter display (paragraph 3.15). The digit and bit data lines to the display are shared with the impulse counter. The level data is scanned by the scan frequency (SCNFRQ) signal, which is a 1 kHz signal from the timing generator. This signal is gated to the counter scan input when the level mode is selected. The sign, decimal point, and least significant digit are blanked for noise measurements. The level display is blanked with the plus sign lit whenever a level measurement exceeds +13 dBm. The display is blanked with the minus sign lit whenever the controls are set to TRMT and QUIET. The entire display is blanked when the controls are set to TRMT and any mode other than LEVEL.

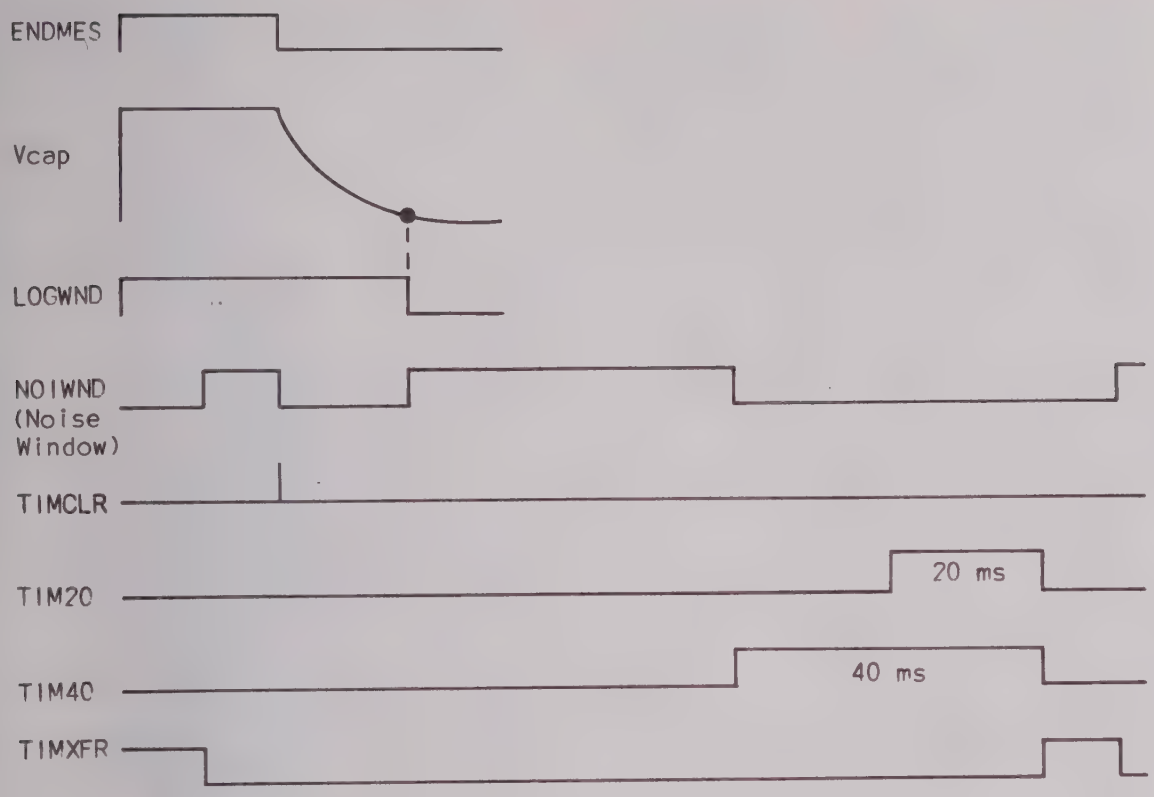

Figure 11. Log Conversion (Noise Measurements)

G. Impulse Counter (Figure 12)

3.26 Threshold Section. The impulse threshold may be set from 40 to 99 dBrn in 1 dB steps. The threshold ten's switch output is encoded into the following three signals:

SWITCH SETTING (dBrn)	IMPUL D	IMPUL B	IMPUL A	GAIN (dP)
40	1	1	1	50
50	1	1	0	40
60	1	0	1	30
70	1	0	0	20
80	0	1	1	10
90	0	1	0	0

IMPUL D and IMPUL B set the gain of an input amplifier in the level meter to 0, 20, or 40 dB. IMPUL A sets the gain of an impulse counter amplifier to 0 or 10 dB. The combination of these two amplifiers provides the required gain steps.

3.27 The 10-position threshold unit's switch produces an output voltage from a switched voltage divider. This output voltage is fed to three voltage comparators. The +0 dB comparator is also fed the output of the gain-select amplifiers. The +4 dB comparator is fed the output attenuated by 4 dB, and the +8 dB comparator is fed the output attenuated by 8 dB. The output of each

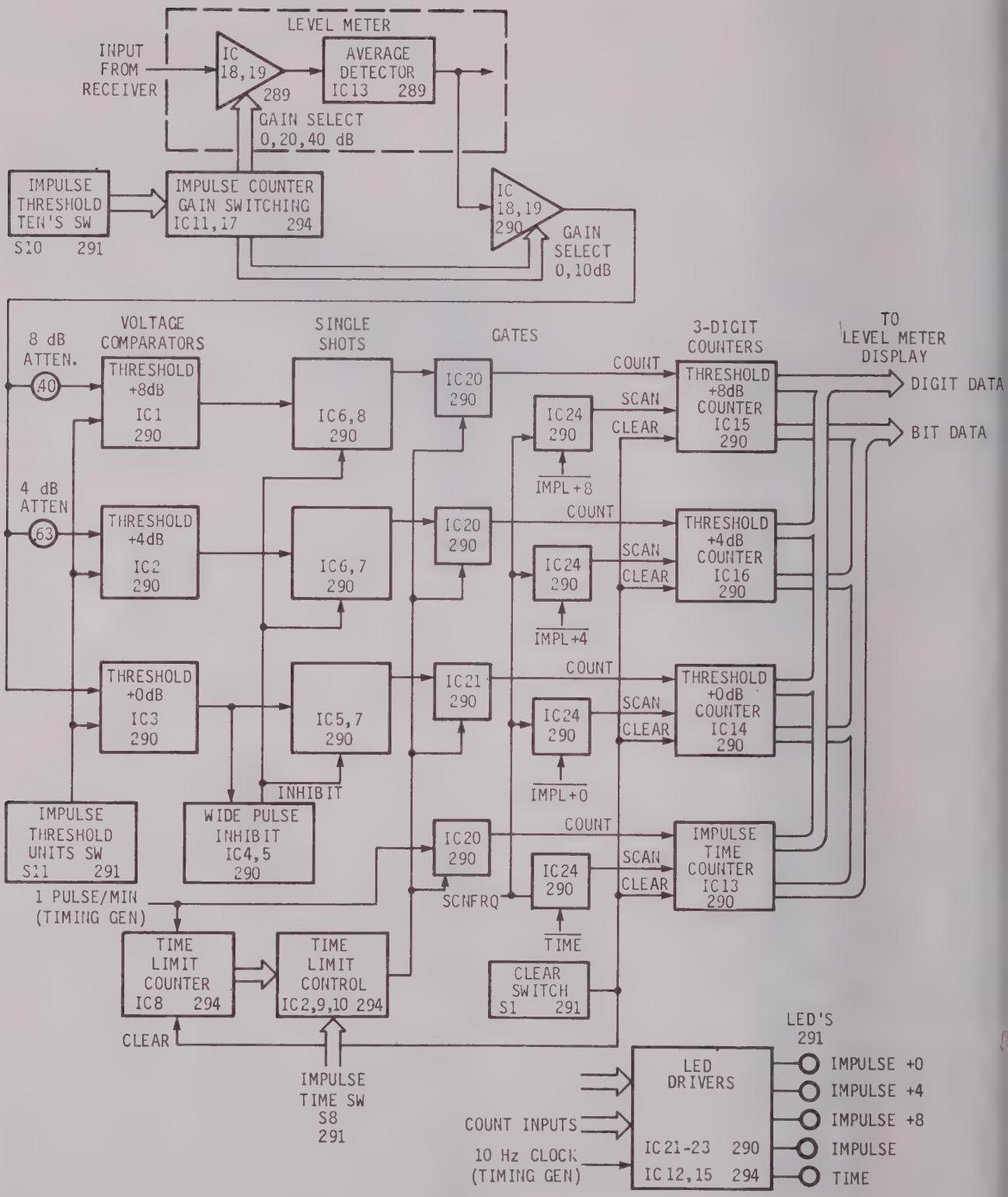

Figure 12. Impulse Counter Block Diagram

omparator goes to a 10-ms single-shot ollowed by a 145-ms single-shot. All ingle-shots are inhibited if the input ulse is longer than 4 ms.

.28 Time Limit Control. The time limit counter is stepped by a 1 ulse/minute signal from the timing generator. The counter output feeds the ime limit control. When the selected ime limit (5 or 15 minutes) is detected, the count inputs to all impulse ounters are disabled by the gates. The ime limit control is disabled when the imit switch is set to the CONT position.

.29 Impulse Counters. Three-digit counters are provided for the hree impulse thresholds and for the impulse time. Operating the CLEAR switch lears these four counters and the time imit counter. The counter outputs go o the level meter display. The counter o be displayed is selected by the mode ontrol signals, which gate the SCNFRQ ignal to the proper scan input.

.30 Impulse LED Indicators. The impulse indicators light to show which counter is being displayed. The IMPULSE+0, IMPULSE+4, and IMPULSE+8 indicators also flash when an impulse is detected. The IMPULSE indicator flashes at a 10 Hz rate during an impulse measurement.

H. Dial and Hold Unit

3.31 Figure 13 shows a simplified diagram of the 705A dial and hold unit. The dial unit can be switched to either line 1 or 2. A holding current is applied to the line when a HOLD switch is turned on. The XFR switch reverses lines 1 and 2.

4. TEST AND CALIBRATION

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A. 704A Acceptance Test Procedure

4.01 The following test procedure verifies proper operation of the 704A.

4.02 Equipment Required. The following test equipment is required:

(a) Multimeter.

(b) RMS Voltmeter Hewlett-Packard 3400A or equivalent.

(c) Distortion Analyzer.

(d) Frequency Counter.

(e) Oscillator.

(f) Oscilliscope.

(g) Attenuator.

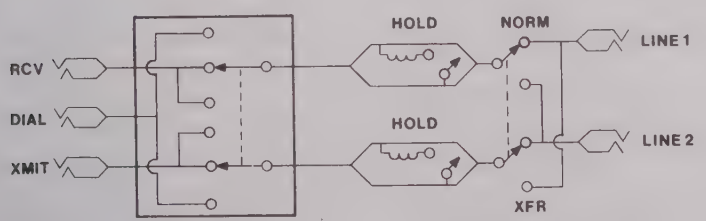

Figure 13. 705A Dial and Hold Unit Simplified Diagram

4.03 Set-Up.

(a) Set the 704A controls as follows:

Function	LEVEL
Mode Switch	XMIT
Oscillator Switch	OSC.
Power Switch	OFF
Speaker Volume Pot	MIN (Anti-clockwise)
Level Pot	MAX (Clock-wise)
Frequency Pot	MIN (Anti-clockwise)
Termination	TERM
Impedance	600
Weighting	WGTD
Frequency Range	4 kHz
Time	CONT

(b) Check that the tip and ring of the RECEIVE and TRANSMIT jacks are not connected to ground.

(c) Check that the sleeves of both jacks are connected to ground.

(d) Set power switch to AC.

4.04 Transmitter level Test.

(a) Connect RMS voltmeter with 600 ohms +/-1 ohm termination to TRANSMIT jack of 704A.

(b) Set the frequency of the 704A to 1 kHz. Adjust the LEVEL control to obtain the following readings on the RMS meter. Check that the level displays are within the limits indicated.

RMS METER	DISPLAY
+13.0 dB	+13.0 +/-0.3 dBm
0.0 dB	0.0 +/-0.1 dBm
-40.0 dB	-40.0 +/-0.3 dBm

4.05 Transmitter Frequency Range Test.

(a) Check that the frequency range is at least 50 Hz to 4 kHz in the 4 kHz mode; at least 4 kHz to 20 kHz in the 20 kHz mode; and at least 20 kHz to 110 kHz in the 110 kHz mode.

(b) Check that the resolution for frequency display is 1 Hz in the 4 kHz mode and 10 hz in the 20 kHz and 110 kHz modes.

4.06 Transmitter Frequency Response Test.

(a) Set transmit level at 0.0 dBm.

(b) Vary the frequency while checking that the displayed level remains within the following limits:

FREQUENCY	LEVEL
50 Hz - 200 Hz	0.0 +/-0.5 dBm
200 Hz - 4kHz	0.0 +/-0.2 dBm
4kHz - 110 kHz	0.0 +/-0.5 dBm

(c) Set transmit level to 0.0 +/-0.1 dBm.

(d) Use the distortion analyzer to measure the transmitter distortion at the following frequencies. Check that the distortion is less than the maximum indicated.

FREQUENCY	MAXIMUM DISTORTION
50 - 300 Hz	-40 dB
300 Hz	-45 dB
1 kHz	-49 dB
3 kHz	-45 dB
3 kHz - 110 kHz	-40 dB

(e) Repeat tests in steps (a) through (d) with 900 ohms and 135 ohms terminations.

(f) Set termination switch to 600 ohms.

4.07 Transmitter 1004 Hz Test.

(a) Set 1004/QUIET/OSC switch to 1004 Hz. Frequency display should read 1.004 +/-.002 kHz.

(b) Adjust transmit level for an RMS voltmeter reading of 0.0 +/-0.1 dBm. Level display should read 0.0 +/-0.1 dBm.

(c) Use the distortion analyzer to check that the distortion is less than -50 dBm.

(d) Set the 1004/QUIET/OSC switch to OSC and adjust the frequency to 1 kHz. The level change when switching from OSC to 1004 should be less than 0.2 dB.

4.08 Transmitter Impedance Test.

(a) Set transmit level to 0.0 dBm and measure the transmitter output with an RMS voltmeter. RMS voltage should be between 0.756 and 0.792 VRMS (600 ohm termination).

(b) Switch the 135/900/600 switch to 900. The level display should still read 0.0 dB. The RMS voltage should be between 0.926 and 0.970 VRMS (900 ohm termination).

(c) Switch the 135/900/600 switch to 135. The level display should still read 0.0 dB. The RMS voltage should be between 0.358 and 0.375 VRMS (135 ohm termination).

4.09 Transmitter Quiet Mode Test.

(a) Switch 1004/QUIET/OSC switch to QUIET.

(b) Measure the transmitter output noise using the distortion analyzer in the noise mode. The noise level should be less than 20 dBrn.

(c) Check that the level and frequency displays are blanked except for the minus sign and decimal points.

4.10 Transmitter Noise Mode Test.

(a) Set TRMT/RCV switch to TRMT.

(b) Select NOTCH function. The level and frequency displays should blank out.

(c) Select NOISE function. The level and frequency displays should blank out.

4.11 Receiver Level Range Test.

(a) Connect the TRANSMIT jack to the RECEIVE jack of the 704A and to an RMS voltmeter.

(b) Set the transmitter frequency to 1000 Hz.

(c) Set the level to obtain the following readings on the RMS voltmeter. Check that the level display readings are within the limits indicated.

RMS VOLTMETER	LEVEL DISPLAY
+13.0 dB	13.0 +/-0.3 dB
0.0 dB	0.0 +/-0.1 dB
-10.0 dB	-10.0 +/-0.1 dB
-20.0 dB	-20.0 +/-0.1 dB
-30.0 dB	-30.0 +/-0.1 dB
-40.0 dB	-40.0 +/-0.3 dB
-50.0 dB	-50.0 +/-0.4 dB

(d) Connect an oscillator to the RECEIVE jack of the 704A. At some level greater than +13.0 dBm the display should blank. As the level is then decreased the display should return at some level greater than +13.0 dBm.

4.12 Receiver Frequency Response Test.

(a) Connect an oscillator to the RECEIVE jack.

(b) Set the oscillator level to 0.0 +/-0.0 dBm and vary the frequency from 50 Hz to 110 kHz. The frequency response should be as follows:

FREQUENCY	LEVEL DISPLAY
50 Hz - 300 Hz	0.0 +/-0.5 dBm
200 Hz - 15 kHz	0.0 +/-0.2 dBm
15 kHz -110 kHz	0.0 +/-0.5 dBm

4.13 Receiver Noise Measurement Test.

(a) Set Function to NOISE.

(b) Connect an oscillator to the RECEIVE jack and to an RMS voltmeter.

(c) Set the oscillator level to obtain the following readings on the RMS voltmeter. The level display should be within the limits indicated.

RMS VOLTMETER	LEVEL DISPLAY
0.0 dBm .7746	90 +/-1 dBrn
10.0 dBm .2450	80 +/-1 dBrn
-20.0 dBm .07746	70 +/-1 dBrn
-30.0 dBm .02450	60 +/-1 dBrn
-40.0 dBm .007746	50 +/-1 dBrn
-50.0 dBm .002450	40 +/-1 dBrn

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4.14 Receiver Notch Filter Test.

(a) Select NOTCH function.

(b) Connect an oscillator to the RECEIVE jack. Set the level to 0.0 dBm. The oscillator distortion must be less than -55 dB.

(c) The level display should read less than 40 dBrn for all frequencies from 995 to 1025 Hz.

(d) Change the oscillator frequency to to 1300 Hz. The level display should read 90 dBrn +/-1 dB.

4.15 Receiver C-Message Filter Test.

(a) Set 704A to 4 kHz and WGTD, and select NOISE function.

(b) Apply a tone at 0.0 dBm to the 704A and check the frequency response.

FREQUENCY	LEVEL DISPLAY
400 Hz +/-1 Hz	78 dBrn +/-1 dB
3000 Hz +/-1 Hz	87 dBrn +/-1 dB
4000 Hz +/-1 Hz	75 dBrn +/-2 dB

4.16 Receiver 3 kHz Flat Filter Test.

(a) Set 704A to 4 kHz and FLAT, and select NOISE function.

(b) Apply a tone at 0.0 dBm to the 704A and check the frequency response.

FREQUENCY	LEVEL DISPLAY
400 Hz +/-1 Hz	90 dBrn +/-1 dB
1000 Hz +/-1 Hz	90 dBrn +/-1 dB
3 kHz +/-1 Hz	87 dBrn +/-2 dB
6 kHz +/-1 Hz	78 dBrn +/-2 dB

4.17 Receiver Program Weighting Filter.

(a) Set 704A to 20 kHz and WGTD, and select NOISE function.

(b) Apply a tone at 0.0 dBm and check the frequency response.

FREQUENCY	LEVEL DISPLAY
400 Hz +/-1 Hz	81 dBrn +/-2 dB
1000 Hz +/-1 Hz	90 dBrn +/-1 dB
3 kHz +/-2 Hz	96 dBrn +/-2 dB
8 kHz +/-10 Hz	94 dBrn +/-4 dB
10 kHz +/-10 Hz	82 dBrn +/-4 dB
15 kHz +/-10 Hz	68 dBrn +/-4 dB

4.18 Receiver 15 kHz Flat Filter Test.

(a) Set 704A to 20 kHz and FLAT, and select NOISE function.

(b) Apply a tone at 0.0 dB,m and check the frequency response.

FREQUENCY	LEVEL DISPLAY
400 Hz +/-1 Hz	90 dBrn +/-1 dB
1000 Hz +/-1 Hz	90 dBrn +/-1 dB
10.05 kHz +/-10 Hz	89 dBrn +/-1 dB
15 kHz +/-10 Hz	87 dBrn +/-2 db

4.19 Receiver Flat Filter Test.

(a) Set the 704A to 110 kHz and FLAT, and select NOISE function.

(b) Apply a tone at 0.0 dBm and check that the frequency response is -3 dB +/-1 dB at 50.5 kHz +/-1 kHz.

4.20 Receiver 497F Filter Test.

(a) Set the 704A to 110 kHz and WGTD, and set Function to Noise Mode.

(b) Apply a tone at 0.0 dBm and check the frequency response.

FREQUENCY	LEVEL DISPLAY
45 Hz +/-1 Hz	87 dBrn +/-3 dB
1 kHz +/-1 Hz	90 dBrn +/-1 dB
28 kHz +/-1 Hz	87 dBrn +/-2 dB
35 kHz +/-1 Hz	85 dBrn +/-1 dB
55 kHz +/-1 Hz	<60 dBrn

4.21 Receiver Impedance and Termination Test

(a) Set the 704A to 4 kHz and WGTD.

(b) Connect the 530B oscillator signal to the 704A receiver.

(c) Switch the 704A to 900 and observe the level. The level should be -0.2 +/-0.1 dB.

(d) Switch the 704A to 135 and observe the level. The level should be -2.3 dB +/-.2 dB.

(e) Switch the 704A to 600 and BRDG and observe the level. The level should be 6.0 +/-0.2 dB. Set the switch back to "TERM."

4.22 Receiver Noise Floor Test.

(a) Disconnect all inputs to 704A.

(b) Set Function to NOISE. Level Display should be less than 10 dBrn.

(c) Set Function to NOTCH. Level Display should be less than 20 dBrn.

4.23 Impulse Hits Test.

(a) Apply a 1700 Hz tone to the 704A Receiver.

(b) Superimpose a 1004 Hz at 0.0 dBm +/-0.1 dB to the 704 Receiver.

(c) Set the 704A to 4 kHz, WGTD, and BRDG.

(d) Set the 704A Function to NOTCH.

(e) Adjust the level of the 1700 Hz signal for a level display reading that just changes from 78 to 79 dBrn. *

(f) Set the threshold switches to ~~84~~ 82.

(g) Step the 704A Function to Impulse +0 and clear the counters. The Impulse LED should be flashing, and the Impulse +0 LED should be ON. The display should be registering hits.

(h) Step the Function to Impulse +4. The Impulse +4 LED should be ON, and the Impulse +0 LED should be flashing. The display should not be registering hits. *

(i) Set the threshold switches to ~~80~~ 78. The display should be registering hits.

(j) Step the function to Impulse +8. The Impulse +8 LED should be ON, and the Impulse +4 LED should be flashing. The display should not be registering hits. *

(k) Set the threshold switches to ~~76~~ 74. The display should be registering hits.

4.24 Battery Operation and Impulse Timer Test.

(a) Unplug AC line and switch power to BATT.

(b) Step the 704A function to TIME.

(c) Set the time switch to 5.

(d) Clear the counters. The time LED should be ON and the Impulse LED should be flashing. The display should register the minutes. After 5 minutes the Impulse LED should stop flashing.

* change 1 2 July 1980
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(e) Repeat test 4.06, 4.07, and 4.11 after 10 minutes.

4.25 Speaker Operation Test.

(a) Set 704A to Xmit Level of 0.0 dBm at 1000 Hz.

(b) Turn the Speaker Volume Pot from minimum to maximum (clockwise) and hear the increase in loudness. Set 704A to Xmit level of -40 dBm at 1000 Hz. Verify you can still hear the tone.

4.26 DC Blocking Test.

(a) Set 704A to "BRDG" and Xmit and 600 ohm term.

(b) Apply a 48 VDC across REC. and Xmit jacks. DC current drawn must be 0 mA. Reverse leads + recheck for 0 mA.

4.27 15 Minutes Timer Test.

(a) Step the 704A function to TIME and clear the counters.

(b) Set the time switch to 15. The Time LED should be on and the Impulse LEd should be flashing. After 15 minutes, the Impulse LED should stop flashing.

(c) Set the time switch to CONT and clear the counters. Verify that the counter still counts after 15 minutes.

4.28 Mechanical Inspection Test.

(a) Check to see all switches and controls are working properly.

(b) Check to see that the displays are properly aligned.

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B. 704A Calibration Test Procedure

4.29 The following calibration procedure verifies proper adjustment of the 704A.

4.30 Documents Applicable.

SD-0002-88
SD=0002-89
SD-0002-90
SD-0002-91
SD-0002-93
SD-0002-94
SD-0002-95
SD-1104-00
ED-0002-88
ED-0002-89
ED-0002-90
ED-0002-91
ED-0002-93
ED-0002-94
ED-0002-95
ED-0002-96
ED-1104-00

4.31 Equipment Required:

(a) Multimeter.

(b) RMS Voltmeter, Hewlett-Packard 3400A or equivalent.

(c) Distortion Analyzer.

(d) Frequency Counter.

(e) Oscillator.

(f) Oscilliscope.

(g) Attenuator.

(h) DC power supply.

(i) Test fixture.

4.32 Set-Up:

(a) Set the 704A controls as follows:

Function	LEVEL
Mode Switch	REC
Impedance Switch	600 Ohms
Termination Switch	TERM
Weighting Switch	FLAT
Frequency Range	4 kHz
Time	CONT
Oscillator Switch	OSC

(b) Check that the tip and ring of the RECEIVE and TRANSMIT jacks are not connected to ground.

(c) Check that the sleeves of both jacks are connected to ground.

4.33 Test-Level Calibration.

(a) Input a 0.0 dBm signal at 1 kHz and check to make sure it is 0.0 dBm on 3400 RMS meter (600 ohm Termination).

(b) Adjust R2 (8000-002-89) for a reading of +/-0.0 on level display.

(c) Attenuate the oscillaor signal by 20 dB.

(d) Adjust R1 (8000-0002-89) for a reading of -20.0 dBm on the level display.

(e) Attenuate the oscillator signal by 40 dB.

(f) Adjust R4 for (8000-0002-89) for a reading of -40.0 dBm on the level display.

(g) Repeat steps (a) thru (f) until the following conditions are met:

RMS VOLTMETER	DISPLAY READING
+13.0 dBm	+13.0 +/-0.2 dBm
0.0 dBm	0.0 +/-0.1 dBm
-10.0 dBm	-10.0 +/-0.2 dBm
-20.0 dBm	-20.0 +/-0.2 dBm
-30.0 dBm	-30.0 +/-0.2 dBm
-40.0 dBm	-40.0 +/-0.2 dBm
-50.0 dBm	-50.0 +/-0.2 dBm

4.34 Test - Noise Calibration:

(a) Set Function to Noise.

(b) Input a 0.0 dBm, 1000 Hz signal.

(c) Adjust R5 (8000-0002-89) for a reading of 90 dBrn on the level display.

(d) Attenuate the oscillator signal by 40 dB.

(e) Adjust R3 (8000-0002-89) for a reading of 50 dBrn on the level display.

(f) Repeat steps (a) thru (e) until the following conditions are met:

RMS VOLTMETER	LEVEL DISPLAY
0.0 dBm	90 + 1 dBrn
-10.0 dBm	80 + 1 dBrn
-20.0 dBm	70 + 1 dBrn
-30.0 dBm	60 + 1 dBrn
-40.0 dBm	50 + 1 dBrn
-50.0 dBm	40 + 1 dBrn

4.35 Test Xmitter Level Calibration:

(a) Set TRMT/RCV switch to TRMT.

(b) Adjust Level pot (front panel) until the level display reads 0.0 dB.

(c) Adjust R10 (8000-0002-95) until 3400 RMS Voltmeter (600 ohm terminated) reads 0.0 +/-0.1 dBm.

4.36 Test - Xmitter Frequency Calibration:

(a) Set 704A to TRMT, OSC mode, and 4 kHz range at 0.0 dB, 300 Hz.

(b) Adjust R2, R3, R5, R4 (8000-0002-95) for distortion -50 dB.

(c) Change Xmit frequency to 50 Hz. Adjust R1 (8000-0002-95) for distortion -40 dB.

(d) Change Xmit frequency to 3000 Hz. Adjust R2 (8000-0002-95) for distortion -48 dB.

(e) Repeat steps (a) through (d) until the distortion specifications are satisfied.

(f) Set to 20 kHz range and tune to 17 kHz. Adjust R6 (8000-0002-95) for minimum distortion.

(g) Set 110 kHz range and tune to 60 kHz. Adjust R7 (8000-0002-95) for minimum distortion.

4.37 Test - 1004 Hz:

(a) Set 704A to TRMT and 1004 Hz mode.

(b) Adjust R8 (8000-0002-95) for a frequency display of 1005 Hz.

(c) Adjust R9 (8000-0002-95) until the rms voltmeter reads 0.0 +/-0.1 dBm (600 ohm termination).

5. ENGINEERING DRAWINGS

5.01 This section contains the Halcyon engineering drawings required for maintenance of the 704A Wide Band Test Set and 705A Dial Hold Unit. The block and final assembly drawings are included first to aid in identifying the subassembly drawings that follow. The subassembly drawings are in numerical order as indicated by the four-digit base number and the two-digit suffix. All of the drawings required for each assembly or subassembly are grouped together, with the schematic diagram followed by the assembly drawing, bills of material, and wiring list as applicable. The drawings included are as follows:

0003-48 Wide Band Test Set Assembly, 704A (w/Battery)

0003-49 Wide Band Test Set Assembly, 704A (w/o Battery)

0003-72 Dial and Hold Assembly, 705A

0003-73 Wide Band Test Set Assembly, (w/Dial and Hold),704A (w/o Battery)

0003-74 Wide Band Test Set Assembly, 704A (w/o Battery, Dial and Hold)

0002-39 Battery Assembly 4.8V

0002-40 Battery Assembly 8.4V

0002-88 Receive Board

0002-89 Analog Measurement

0002-90 Impulse Board

0002-91 Display/Front Panel

0002-93 Digital Control

0002-94 Logic Board

0002-95 Transmitter Board

0002-96 Mother Board

0003-47 Enclosure Assembly

0003-52 Battery Option Kit Assembly

0003-65 Front Panel Assembly

0003-80 Cable Assembly, D/C Power

0004-34 Assembly Enclosure (w/o Dial and Hold)

1104-00 Power Supply Board

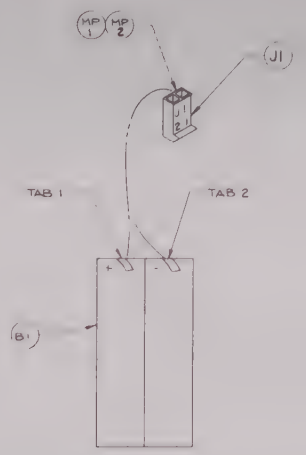
1122-25 Rear Panel Assembly

SINGLE LEVEL BILLS OF MATERIAL

PARENT PART: 8800-0002-39 ASSY BATTERY 4.8V UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: A SRCE CODE: A DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S A P R	P B L C	L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	2101-0017-02	CON-FEMALE 2 PIN J1			P	1		C	P	EA	1.00					
010	2101-0017-30	CONTACT-PIN MOLEX MP1-2			P	1		D	P	EA	2.00					
015	4000-0020-00	BATTERY-NICAD ONE 4.8VX1.2AH B1			P	1			P	EA	1.00					

REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED
A	PRODUCTION RELEASE	11-15-76	



2. FOR WIRING LIST SEE WL-0002-39
1. FOR LIST OF MATERIALS SEE 8800-0002-39
NOTES-UNLESS OTHERWISE SPECIFIED

ITEM NO	PART OR IDENTIFYING NO.	QTY. REQ'D	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.

LIST OF MATERIAL OR PARTS LIST

NEXT ASSY	QTY. NEXT	QTY. FINAL	MODEL NO
BELL 1015-2	1	-	104A
BELL 1015-1	1	-	101A

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.
√ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED
TOLERANCES ON:
DECIMALS
ANGLES ±1°
HOLES (DRILL) +.005 -.001
FINISH SEE NOTES

HALCYON INC. 501 VANDELL WAY CAMPBELL, CA 95008

ASSY- BATTERY 4.8 V

DATE 11/15/76 BY E APPROVED APPROVED

SIZE D | DRAWING NO ED-0002-39 | REV. A

SCALE 1/1 | STOCK AS 8800 | SHEET 1 OF 1

DO NOT SCALE DWG

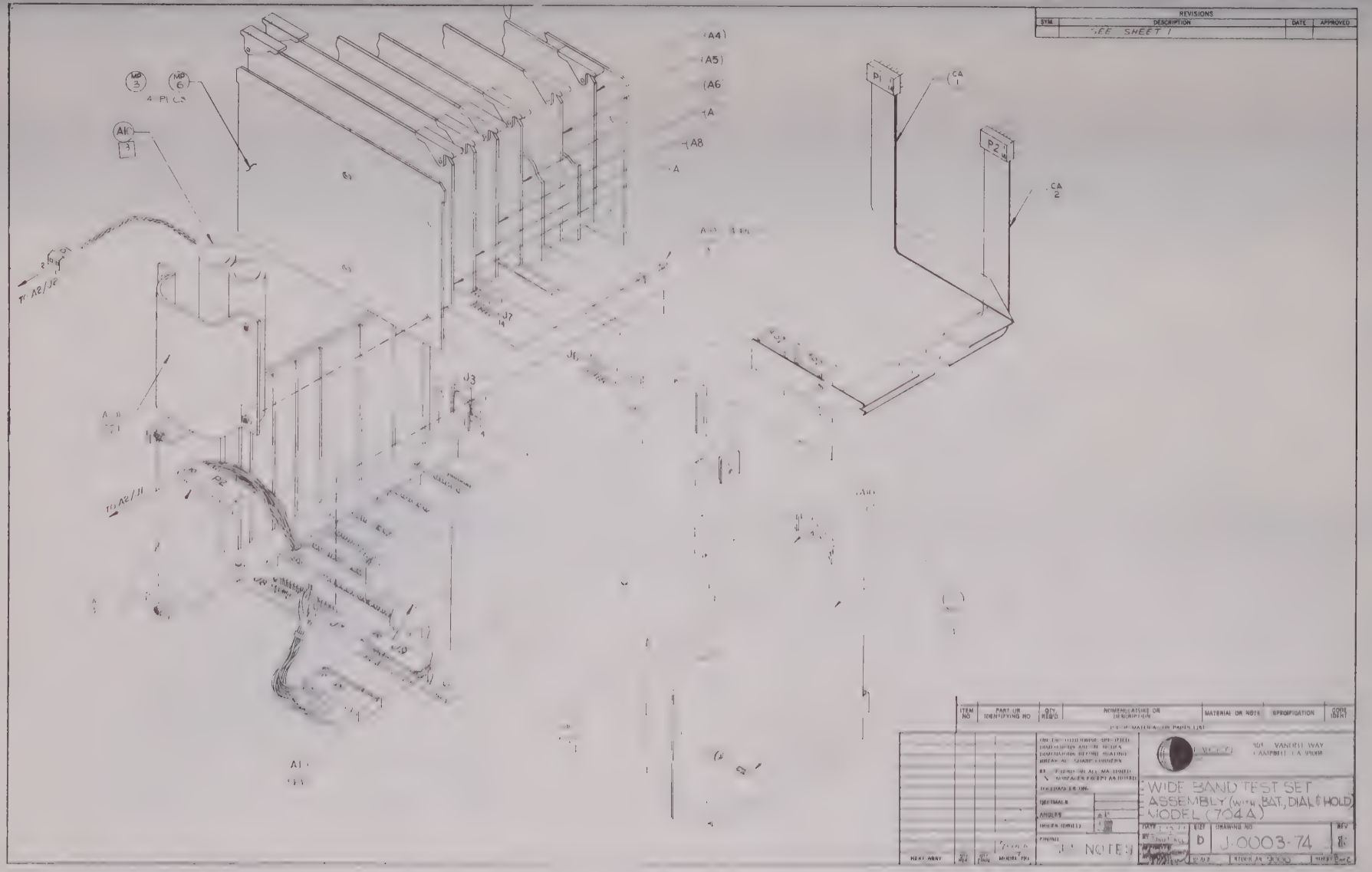
ED-0002-39 A

EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 9000-0003-74 TEST SET 704A ASSY W/B,DH UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE:A TYPE: 1 ABC: Y PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CO	S C E	T Y P	S T R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
010	2500-0003-05		SHIELD PLATE 704A MP3-6		P	1			P	EA	4.00		26-OCT-77			
020	2500-0003-10		COVER PCB 704A MP2		P	1			P	EA	1.00					
030	6010-0003-80	A	CABLE ASSY DC PWR 704A CA3		A	1		X	P	EA	1.00					
035	6010-0015-54		CABLE ASSY 14 PIN CA2		P	1			P	EA	1.00					
040	6010-0015-74		CABLE ASSY 24 PIN CA1		P	1			P	EA	1.00					
045	8000-0002-88	A	PCB ASSY-RECEIVE BRD A4		A	1		Y	P	EA	1.00					
050	8000-0002-89	B	PCB ASSY-ANALOG MEASUREMENT A5		A	1		Y	P	EA	1.00					
055	8000-0002-90	B	PCB ASSY-IMPULSE BRD A8		A	1		Y	P	EA	1.00					
060	8000-0002-93	B	PCB ASSY-DIGITAL CONT A7		A	1		Y	P	EA	1.00					
065	8000-0002-94	B	PCB-ASSY-LOGIC BOARD A9		A	1		Y	P	EA	1.00					
070	8000-0002-95	B	PCB ASSY-TRANSMIT BRD A6		A	1		Y	P	EA	1.00					
073	8100-0004-92	A	ASSY, COVER & LATCH-REAR A12		A	1		*	P	EA	1.00		29-JAN-79			
075	8200-1122-25	B	ASSY-BACK PANEL MOD 701 A2		A	1		X	P	EA	1.00					
080	8210-0003-65	C	FRONT PANEL ASSY 704A A1		A	1		X	P	EA	1.00					
082	8220-0003-52	A	BATT OPTION KIT 704A A10		A	1		X	P	EA	1.00		26-OCT-77			
085	8500-0003-47	B	ENCLOSURE ASSY 704A A3		A	1		X	P	EA	1.00					
100	9000-0003-72	2	DIAL & HOLD ASSY 705A A11		A	1			P	EA	1.00		26-OCT-77			


REVISIONS
SYM
DESCRIPTION
DATE
APPROVED
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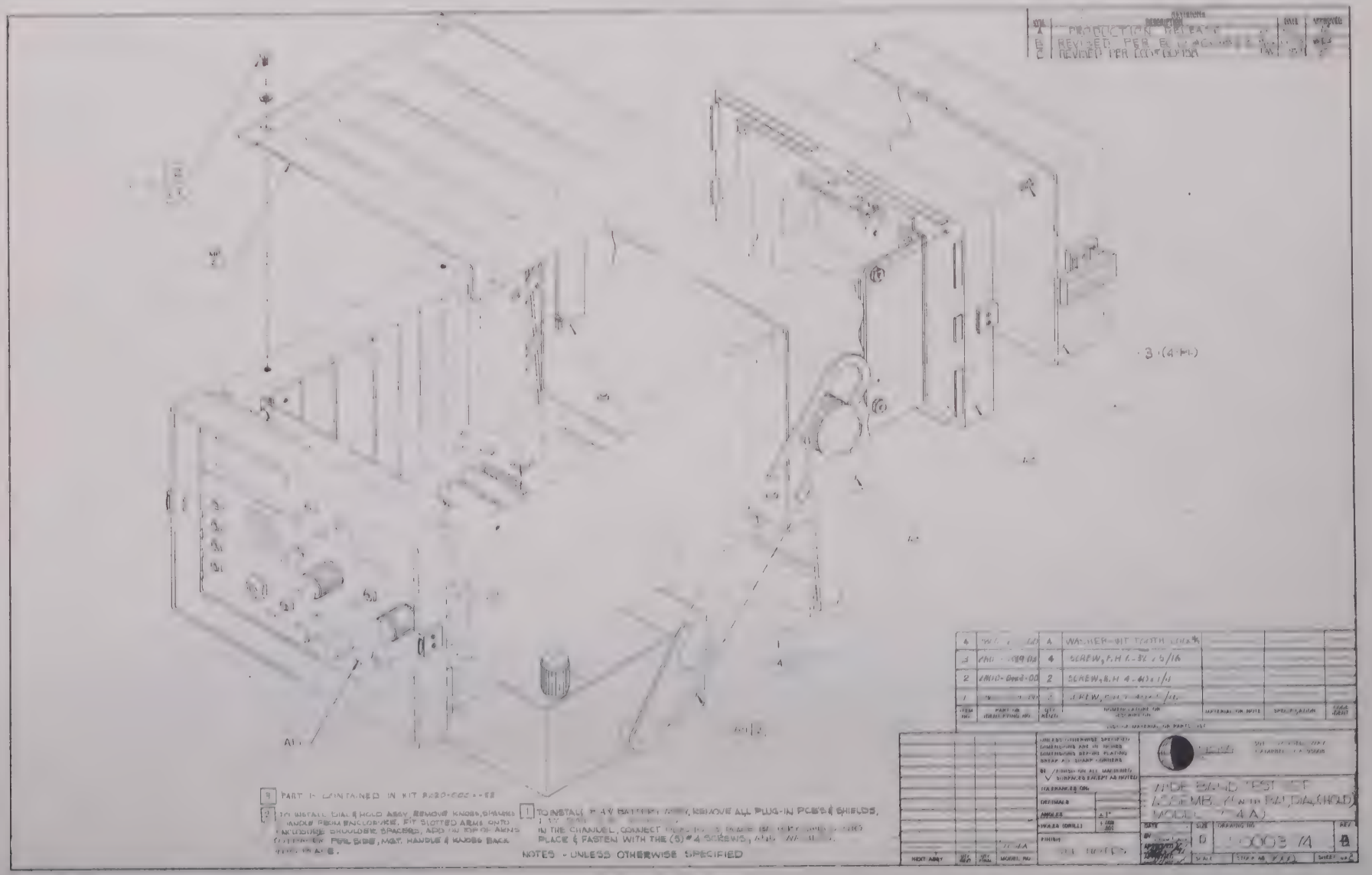
MD 6
4 PLCS
A1C 3
TO A2/12
TO A2/11
J3
J7
J6
P1
P2
CA 1
CA 2
A4
A5
A6
A
A8
A1
ITEM NO
PART OR IDENTIFYING NO
QTY REQ'D
NOMENCLATURE OR DESCRIPTION
MATERIAL OR NOTE
SPECIFICATION
CODE IDENT
105 VARNEY WAY
AIRPORT, LA 90630
WIDE BAND TEST SET
ASSEMBLY (WITH BAT, DIAL & HOLD
MODEL (704A)
SIZE
DRAWING NO
REV
D
J-0003-74
NEXT ASSY
NOTES



QTY	DESCRIPTION	DATE	APPROVED
A	PRODUCTION RELEASE		
B	REVISED PER ECR [illegible]		
C	REVISED PER ECO [illegible]		

ITEM NO.	PART OR IDENTIFYING NO.	QTY REQD.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	VENDOR OR PART NO.
4	[illegible]	A	WASHER-#IT TOOTH LOCK			
3	[illegible]	4	SCREW, F.H. 6-32 x 5/16			
2	[illegible]	2	SCREW, R.H. 4-40 x 1/4			
1	[illegible]	2	SCREW, [illegible]			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS. 63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED. TOLERANCES ON: DECIMALS [illegible]; ANGLES ±1°; SCALE [illegible]; FINISH [illegible]

NEXT ASSY [illegible] USED ON [illegible] MODEL NO. 7-4A

[illegible] SCALE [illegible] SIZE B DRAWING NO. [illegible] 00003 11 REV B

SHEET NO. 2

3 (4 PL)

9 PART IS CONTAINED IN KIT B220-0004-00

2 TO INSTALL DIAL & HOLD ASSY, REMOVE KNOBS, SPACERS, HANDLE FROM ENCLOSURE, FIT SLOTTED ARMS ONTO SHAFTS INCLUDING SHOULDER SPACERS, ADD NUTS TOP OF ARMS WITH [illegible] FOR SIDE, MAT. HANDLE & KNOBS BACK [illegible] A-B.

1 TO INSTALL [illegible] ASSY, REMOVE ALL PLUG-IN PCB'S & SHIELDS, [illegible] IN THE CHANNEL, CONNECT [illegible] PLACE & FASTEN WITH THE (3) #4 SCREWS, AND [illegible]

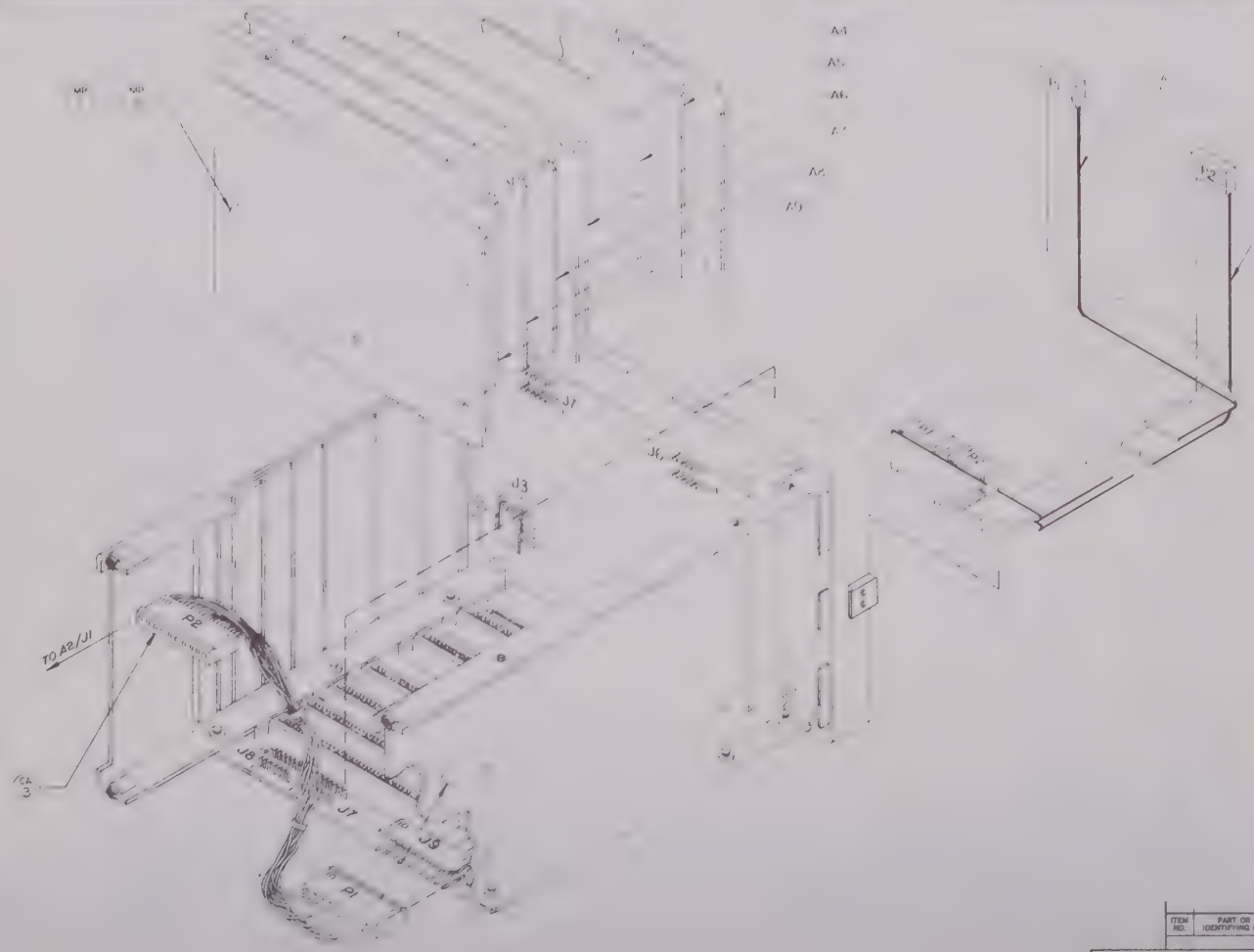
NOTES - UNLESS OTHERWISE SPECIFIED

EFFECTIVITY DATE: ALL

SINGLE LEVEL BILLS OF MATERIAL

PARENT PART: 9000-0003-73 TEST SET 704A ASSY W/OB UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE:A TYPE: 1 ABC: Y PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	START S/N	CLOSE DATE	CLOSE S/N
005	2500-0003-05		SHIELD PLATE 704A MP3-5		P	1			P	EA	3.00					
010	2500-0003-10		COVER PCB 704A MP2		P	1			P	EA	1.00					
020	6010-0003-80	A	CABLE ASSY DC PWR 704A CA3		A	1		X	P	EA	1.00					
025	6010-2153-27		CABLE ASSY 14 PIN CA2		A	1		X	P	EA	1.00					
030	6010-2153-33		CABLE ASSY 24 PIN CA1		A	1		X	P	EA	1.00					
035	8000-0002-88	B	PCB ASSY-RECEIVE BRD A4		A	1		Y	P	EA	1.00					
040	8000-0002-89	B	PCB ASSY-ANALOG MEASUREMENT A5		A	1		Y	P	EA	1.00					
045	8000-0002-90	B	PCB ASSY-IMPULSE BRD A8		A	1		Y	P	EA	1.00					
050	8000-0002-93	B	PCB ASSY-DIGITAL CONT A7		A	1		Y	P	EA	1.00					
055	8000-0002-94	B	PCB-ASSY-LOGIC BOARD A9		A	1		Y	P	EA	1.00					
060	8000-0002-95	B	PCB ASSY-TRANSMIT BRD A6		A	1		Y	P	EA	1.00					
063	8100-0004-92	A	ASSY, COVER & LATCH-REAR A11		A	1		*	P	EA	1.00		29-JAN-79			
065	8200-1122-25	B	ASSY-BACK PANEL MOD 701 A2		A	1		Y	P	EA	1.00					
070	8210-0003-65	C	FRONT PANEL ASSY 704A A1		A	1		X	P	EA	1.00					
075	8500-0003-47	B	ENCLOSURE ASSY 704A A3		A	1		X	P	EA	1.00					
080	9000-0003-72	2	DIAL & HOLD ASSY 705A A10		A	1			P	EA	1.00					



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

ITEM NO.	PART OR IDENTIFYING NO.	QTY REQ'D	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DIMENSIONS BEFORE PLATING
BREAK ALL SHARP CORNERS
FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED
TOLERANCES ON:
DECIMALS
ANGLES ±1°
HOLES (DRILL) —.000 —.001
FINISH

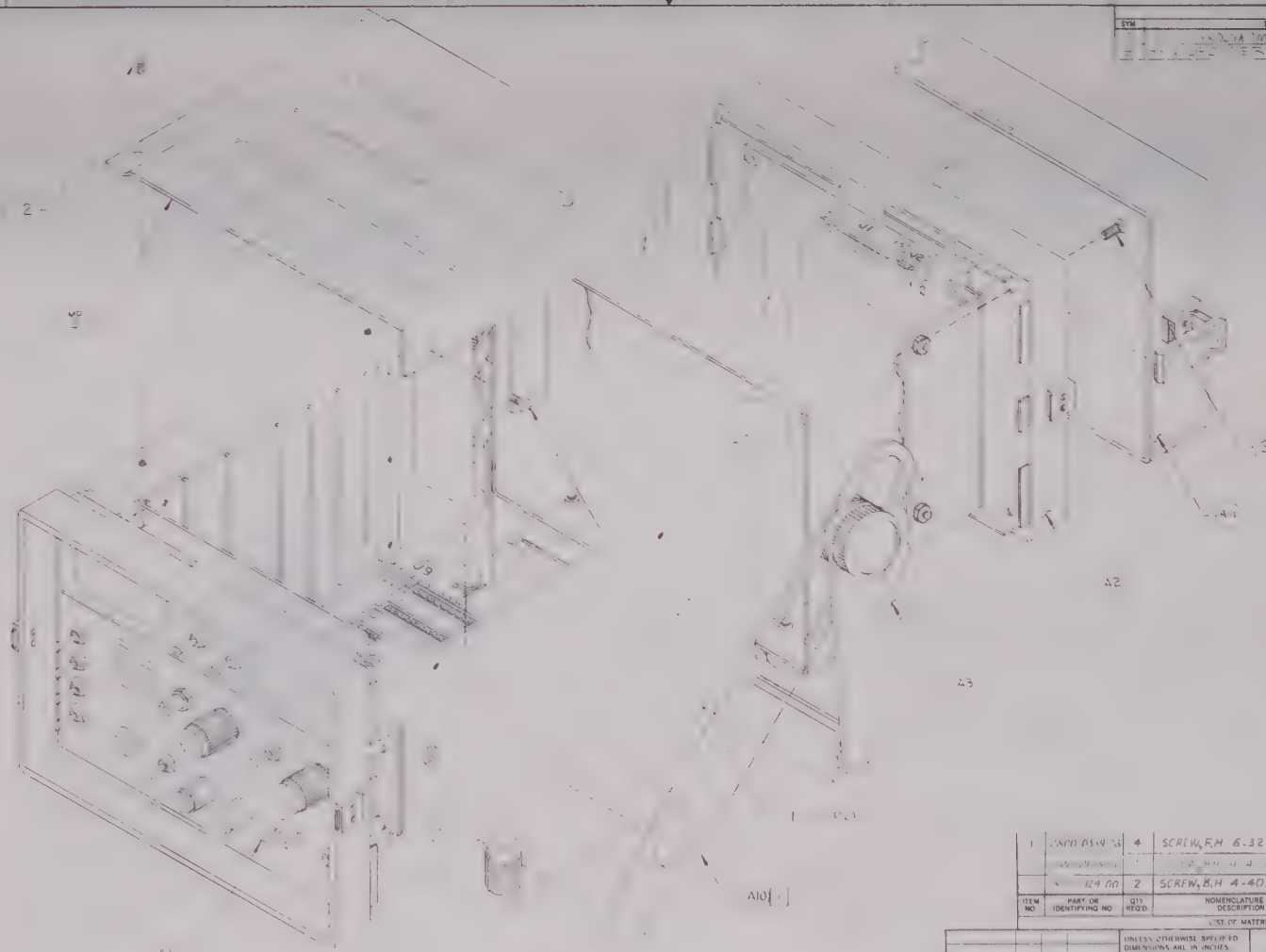
NEXT ASSY | QTY NEXT | QTY FINAL | MODEL NO

CAMPBELL

WIDE BAND TEST SET
ASSEMBLY (WITH DIAL & HOLD)
MODEL (704A) (W/O BAT.)

DATE 3-77 | SIZE D | DRAWING NO. J-0003-73 | REV E
BY | SCALE — | STOCK AS 7000 | SHEET 2 of 2

DO NOT SCALE DWG



REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
	...ION RELEASE		
	...ER ECO #00822		

ITEM NO	PART OR IDENTIFYING NO	QTY REQ'D	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.
1	...APPD DSG'D	4	SCREW, F.H 6-32 x 5/16			
	...		...			
	124.00	2	SCREW, B.H 4-40 x 5/16			

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DIMENSIONS BEFORE PLATING
BREAK ALL SHARP CORNERS
FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED
TOLERANCES ON
DECIMALS
ANGLES ±1°
HOLES (DRILL) ±.003 -.001
FINISH

NEXT ASSY | QTY REQ'D | QTY FINAL | MODEL NO.

HARCON 301 VANDELL WAY CAMPBELL CA 95008

WIDE BAND TEST SET
...SSEMBLY (WITH DIAL & HOLD)
MODEL (...04A) W/O BAT.)

DRAWN ... DATE ...
BY ... (ALL)
APPROVED
APPROVED

SIZE D | DRAWING NO. ...1(XX)3-13 | REV. B

SCALE — | STOCK AS 9000 | SHEET 1 of 2

DO NOT SCALE DWG

NOTES: UNLESS OTHERWISE SPECIFIED

WIRING LIST WL 0003 - 72 REV A

E 5-14-79 ECO Nº 00859 SHEET 1 OF 2

WIRE			FROM		TO		FUNCTION
E	COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
			S1	5	S1	3	
			S1	6	S1	4	
			S1	12	S1	14	Solid Jumpers -
			S1	15	S1	17	Teflon Coated
			S1	1	S1	16	
			S1	2	S1	19	
	BRN	1-1/2	S1	16	J5	R	
	RED	1-1/2	S1	2	J5	T	
	RED	5-1/2	S1	3	J1	R	Twisted
	GRN	5-1/2	S1	4	J1	T	Pair
	BLU	4-1/2	S1	14	J2	R	Twisted
	BRN	4-1/2	S1	17	J2	T	Pair
	GRN	4"	S1	7	S4	2	Twisted
	BRN	4"	S1	8	S4	5	Pair
	BLK	2-1/4	S1	18	S4	8	Twisted
	BRN	2-1/4	S1	20	S4	11	Pair
	YEL	5"	S2	1	S1	7	
	ORG	3"	S2	2	L1	1	
	GRN	6"	S3	1	S1	18	
	BLU	5"	S3	2	L2	1	
	VIO	4-1/2	S4	5	L1	2	
	WHT	1-1/2	S4	11	L2	2	
	Wh/Br	2-1/2	S5	R	J6		
	Wh/Rd	2-1/2	S5	T	J7		

1004-4B

WIRING LIST WL 0003 – 72 REV see sheet 1

DATE _____ ECO No. see sheet 1 SHEET 2 OF 2

WIRE			FROM		TO		FUNCTION
SIZE	COLOR	LENGTH	DESIGNATOR	PIN No.	DESIGNATOR	PIN No.	
20	BLK	2-1/2	J1	S	J2	S	
20	BLK	3-1/2	J2	S	J4	S	
20	BLK	2-1/2	J4	S	J3	S	GND
20	BLK	4"	J3	S	J5	S	
20	BLK		J8	S	J9	S	
20	BLK		J9	S	J1	S	
24			S4	1	S4	9	
24			S4	3	S4	7	Solid Jumpers -
24			S4	4	S4	12	Teflon Coated
24			S4	6	S4	10	
24	GRN	2-1/4	S4	1	J3	R	Twisted
24	BRN	2-1/4	S4	4	J3	T	Pair
24	BLK	2-1/4	S4	3	J4	R	Twisted
24	BRN	2-1/4	S4	6	J4	T	Pair
24	RED		J1	T	J8	T	Twisted
24	GRN		J1	R	J8	R	Pair
24	RED		J2	T	J9	T	Twisted
24	GRN		J2	R	J9	R	Pair

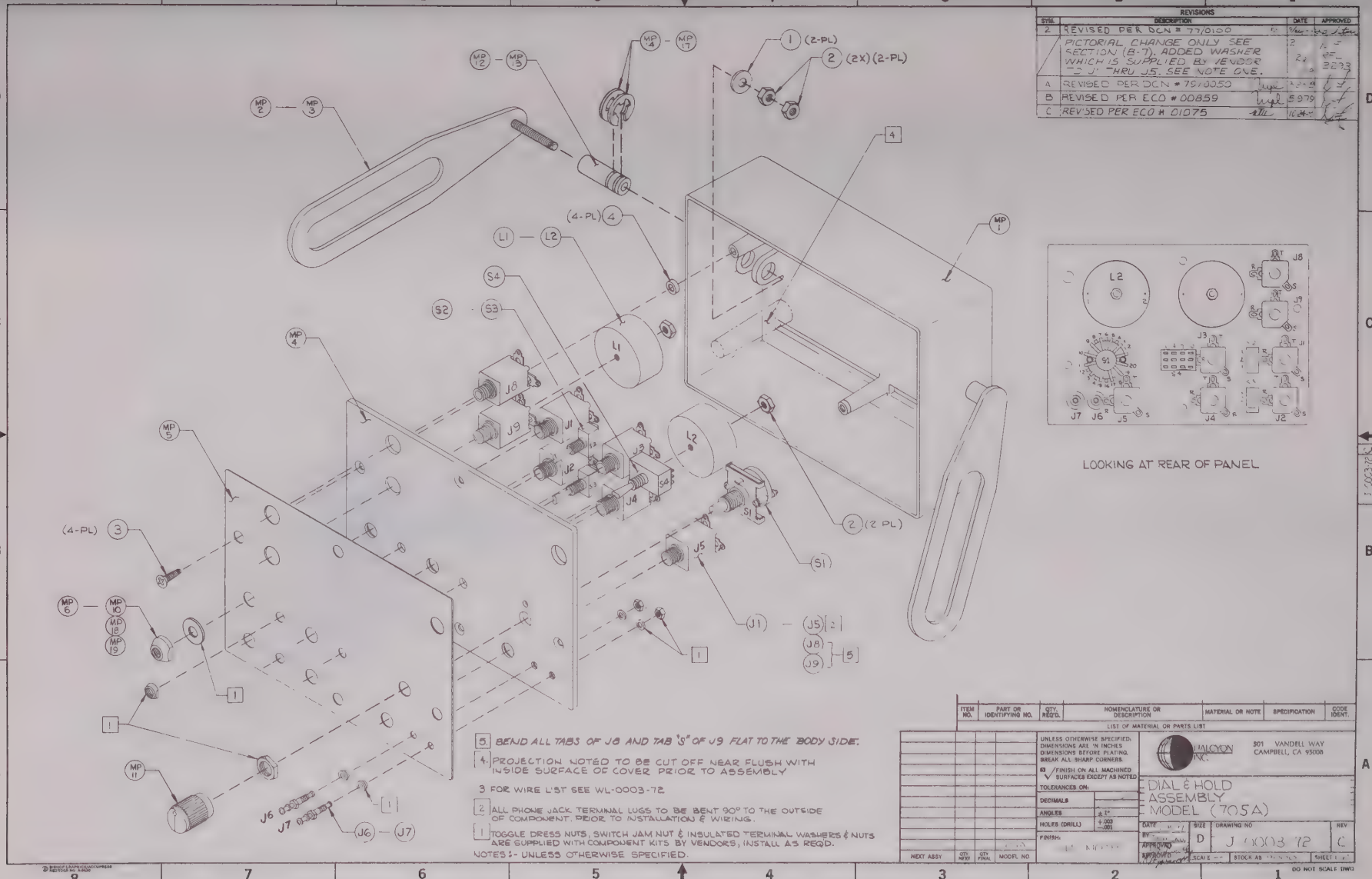
EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 9000-0003-72 DIAL & HOLD ASSY 705A UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: A SRCE CODE:A TYPE: 1 ARC: PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	ERC	PART DESCRIPTION / REMARKS	PRCD	STYPE	TYPE	SRC	ARC	PL	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	1850-0001-00		COIL-HOLDING 3H/50MA 1KHZ L1,2		P	1		A	P	EA	2.00					
010	2100-0204-00		CON-TEL JACK 8 CONDOCKT J1-J5,J8,J9		P	1		C	P	EA	7.00		13-JUL-79			
015	2103-0006-00		TERMINAL-INSULATED J6,7		P	1		C	P	EA	2.00					
020	2401-0054-06		KNOB-.70 DIA W/DOT SKIRTED 1/4 MP11		P	1		B	P	EA	1.00					
025	2450-0003-79		LABEL-DIAL&HOLD 704A MP5		P	1			P	EA	1.00					
030	2500-0001-37		NUT-DRESS 310 JACK MP6-10,18,19		P	1		C	P	EA	7.00		13-JUL-79			
035	2500-0003-28		COVER-DUST FRONT MP1		P	1			P	EA	1.00					
040	2500-0003-29		SPACER-HUB DIAL AND HOLD MP12,13		P	1			P	EA	2.00					
045	2500-0003-68		ARM-FRONT COVER 704A MP2,3		P	1			P	EA	2.00					
050	2500-0003-71		FACE PLATE-DIAL&HOLD MP4		P	1			P	EA	1.00					
055	2800-0046-07		RING-RETAINING E SERIES MP14-17		P	1			P	EA	4.00					
060	5100-0201-00		SW-TOGGLE SPDT FLAT BAT S2,3		P	1		B	P	EA	2.00		28-MAR-78			
065	5100-0210-00		SW-TOGGLE 4PDT FLAT BAT S4		P	1		B	P	EA	1.00					
070	5100-0300-00		SWITCH 5 POLE 3 POS S1		P	1			P	EA	1.00					

END OF REPORT



SYM.	REVISIONS DESCRIPTION	DATE	APPROVED
2	REVISED PER DCN # 77/0100		
	PICTORIAL CHANGE ONLY SEE SECTION (B-7). ADDED WASHER WHICH IS SUPPLIED BY VENDOR "J" THRU J5. SEE NOTE ONE.		
A	REVISED PER DCN # 79/0050		
B	REVISED PER ECO # 00859	5 979	
C	REVISED PER ECO # 01075		

LOOKING AT REAR OF PANEL

5. BEND ALL TABS OF J8 AND TAB "S" OF J9 FLAT TO THE BODY SIDE.

4. PROJECTION NOTED TO BE CUT OFF NEAR FLUSH WITH INSIDE SURFACE OF COVER PRIOR TO ASSEMBLY

3 FOR WIRE LIST SEE WL-0003-72

2. ALL PHONE JACK TERMINAL LUGS TO BE BENT 90° TO THE OUTSIDE OF COMPONENT. PRIOR TO INSTALLATION & WIRING.

1. TOGGLE DRESS NUTS, SWITCH JAM NUT & INSULATED TERMINAL WASHERS & NUTS ARE SUPPLIED WITH COMPONENT KITS BY VENDORS, INSTALL AS REQD.

NOTES:- UNLESS OTHERWISE SPECIFIED.

ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
DIMENSIONS BEFORE PLATING.
BREAK ALL SHARP CORNERS.
63 / FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:
DECIMALS
ANGLES ±1°
HOLES (DRILL) +.003 -.001
FINISH:

NEXT ASSY | QTY. NEXT | QTY. FINAL | MODEL NO.

HALCYON INC.
501 VANDELL WAY
CAMPBELL, CA 95008

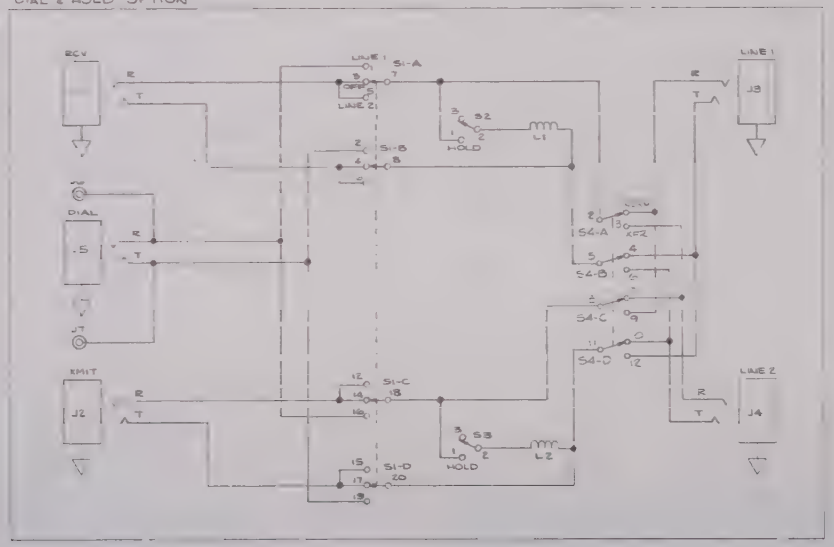
DIAL & HOLD ASSEMBLY MODEL (705A)

DATE | SIZE D | DRAWING NO J 0003 72 | REV C
BY
APPROVED
APPROVED
SCALE -- | STOCK AS | SHEET 1 of 2

DO NOT SCALE DWG

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED

DIAL & HOLD OPTION



ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NSPE	SPECIFICATION	CODE IDENT.

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES.
DIMENSIONS BEFORE PLATING.
BREAK ALL SHARP CORNERS.
63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:	
DECIMALS	
ANGLES	± 1°
HOLES (DRILL)	+.005 −.000
FINISH:	

HALCYON INC.
501 VANDELL WAY
CAMPBELL, CA 95008

BLOCK DIAGRAM-
DIAL & HOLD OPTION

DATE	SIZE	DRAWING NO.	REV.
15 FEB 77	D	BD-0003-72	2

NEXT ASSY.	QTY. NEXT	QTY. FINAL	MODEL NO.

BY
APPROVED
APPROVED
SCALE —
STOCK AS —
SHEET 1 of 1

DO NOT SCALE DWG.

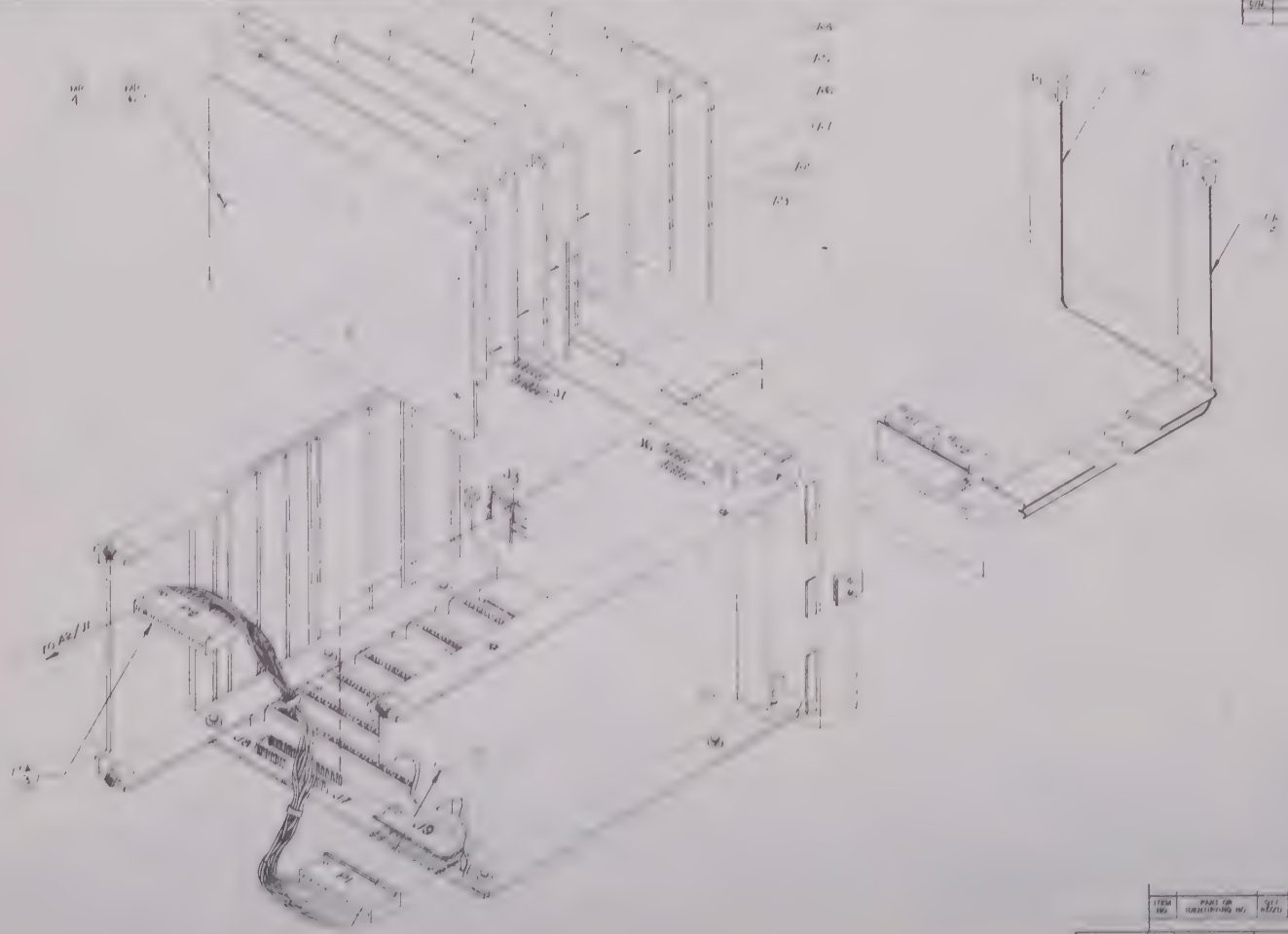
BD-0003-72 2

EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 9000-0003-49 TEST SET 704A ASSY (W/O B) UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ENG: B SRCE CODE:A TYPE: 1 ARC: Y PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E N G	PART DESCRIPTION / REMARKS	PR CD	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	2500-0003-05		SHIELD PLATE 704A MP4-6		P	1			P	EA	3.00					
010	2500-0003-10		COVER PCB 704A MP3		P	1			P	EA	1.00					
025	6010-0003-80	A	CABLE ASSY DC PWR 704A CA3		A	1		X	P	EA	1.00					
030	6010-2153-27		CABLE ASSY 14 PIN CA2		A	1		X	P	EA	1.00					
035	6010-2153-33		CABLE ASSY 24 PIN CA1		A	1		X	P	EA	1.00					
040	8000-0002-88	B	PCB ASSY-RECEIVE BRD A4		A	1		Y	P	EA	1.00					
045	8000-0002-89	B	PCB ASSY-ANALOG MEASUREMENT A5		A	1		Y	P	EA	1.00					
050	8000-0002-90	B	PCB ASSY-IMPULSE BRD A8		A	1		Y	P	EA	1.00					
055	8000-0002-93	B	PCB ASSY-DIGITAL CONT A7		A	1		Y	P	EA	1.00					
060	8000-0002-94	B	PCB-ASSY-LOGIC BOARD A9		A	1		Y	P	EA	1.00					
065	8000-0002-95	B	PCB ASSY-TRANSMIT BRD A6		A	1		Y	P	EA	1.00					
067	8100-0004-92	A	ASSY, COVER & LATCH-REAR A11		A	1		*	P	EA	1.00		29-JAN-79			
068	8100-0004-93	A	ASSY, COVER & LATCH-FRONT A12		A	1		*	P	EA	1.00		29-JAN-79			
070	8200-1122-25	B	ASSY-BACK PANEL MOD 701 A2		A	1		X	P	EA	1.00					
075	8210-0003-65	C	FRONT PANEL ASSY 704A A1		A	1		X	P	EA	1.00					
080	8500-0004-34	B	ENC ASSY 704 WO/D&R A3		A	1		X	P	EA	1.00					



(REF) (A1)

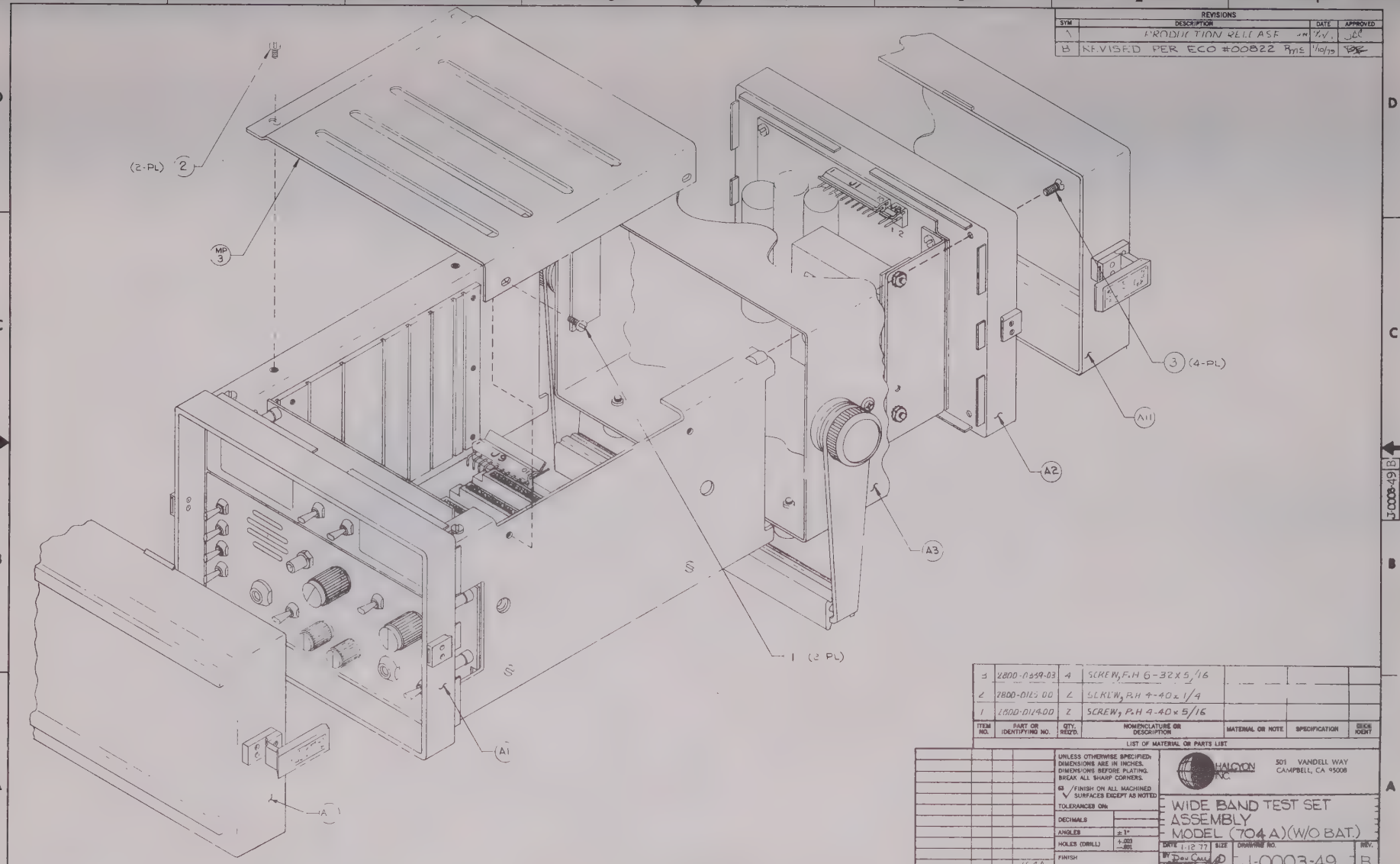
ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CAGE CODE
			LIST OF MATERIAL OR PARTS LIST			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DIMENSIONS BEFORE PLATING
BREAK ALL SHARP CORNERS
DO NOT SCALE DRAWING
TOLERANCES ON:
DECIMALS
ANGLES
FINISH
NEXT ASSY | QTY REQ'D | QTY FINAL | MODEL NO

SIDE BAND TEST SET
ASSEMBLY
MODEL 7704A (A1) (B1) (C1)

SIZE D | DRAWING NO. J-0003-43 | REV
SCALE | WT. | SHEET
STOCK NO. 7704

DO NOT SCALE DWG.



REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
A	PRODUCTION RELEASE	7/1/77	JLC
B	REVISED PER ECO #00822 R/ME	1/10/79	[illegible]

ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	STOCK NO/ENT
3	2800-0659-03	4	SCREW, F.H 6-32 x 5/16			
2	2800-0165 00	2	SCR'W, P.H 4-40 x 1/4			
1	2800-0114 00	2	SCREW, P.H 4-40 x 5/16			

LIST OF MATERIAL OR PARTS LIST

NOTES:- UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.

63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:

DECIMALS

ANGLES ± 1°

HOLES (DRILL) +.003 −.001

FINISH

NEXT ASSY. | QTY. NEXT | QTY. FINAL | MODEL NO. 704A

HALCYON INC. 501 VANDELL WAY CAMPBELL, CA 95008

WIDE BAND TEST SET ASSEMBLY MODEL (704A)(W/O BAT.)

DATE 1-12-77 | SIZE D | DRAWING NO. J-0003-49 | REV. B

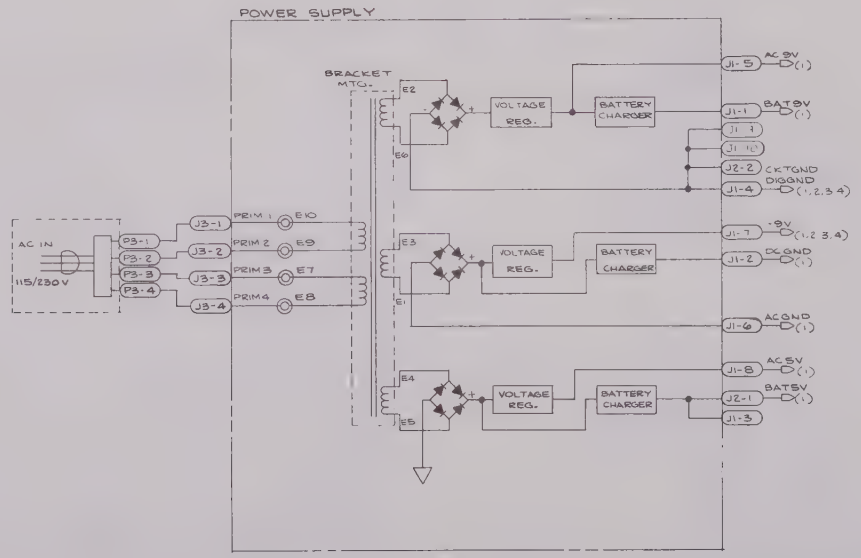
BY Dan Call

SCALE — | STOCK AS 9000 | SHEET 1 of 2

DO NOT SCALE DWG.

J-0003-49 B

REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED
	SEE SHEET 1		



ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES.
DIMENSIONS BEFORE PLATING.
BREAK ALL SHARP CORNERS.

63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:

DECIMALS	
ANGLES	±1°
HOLES (DRILL)	+.003 −.001
FINISH	

NEXT ASSY. | QTY. NEXT | QTY. FINAL | MODEL NO.

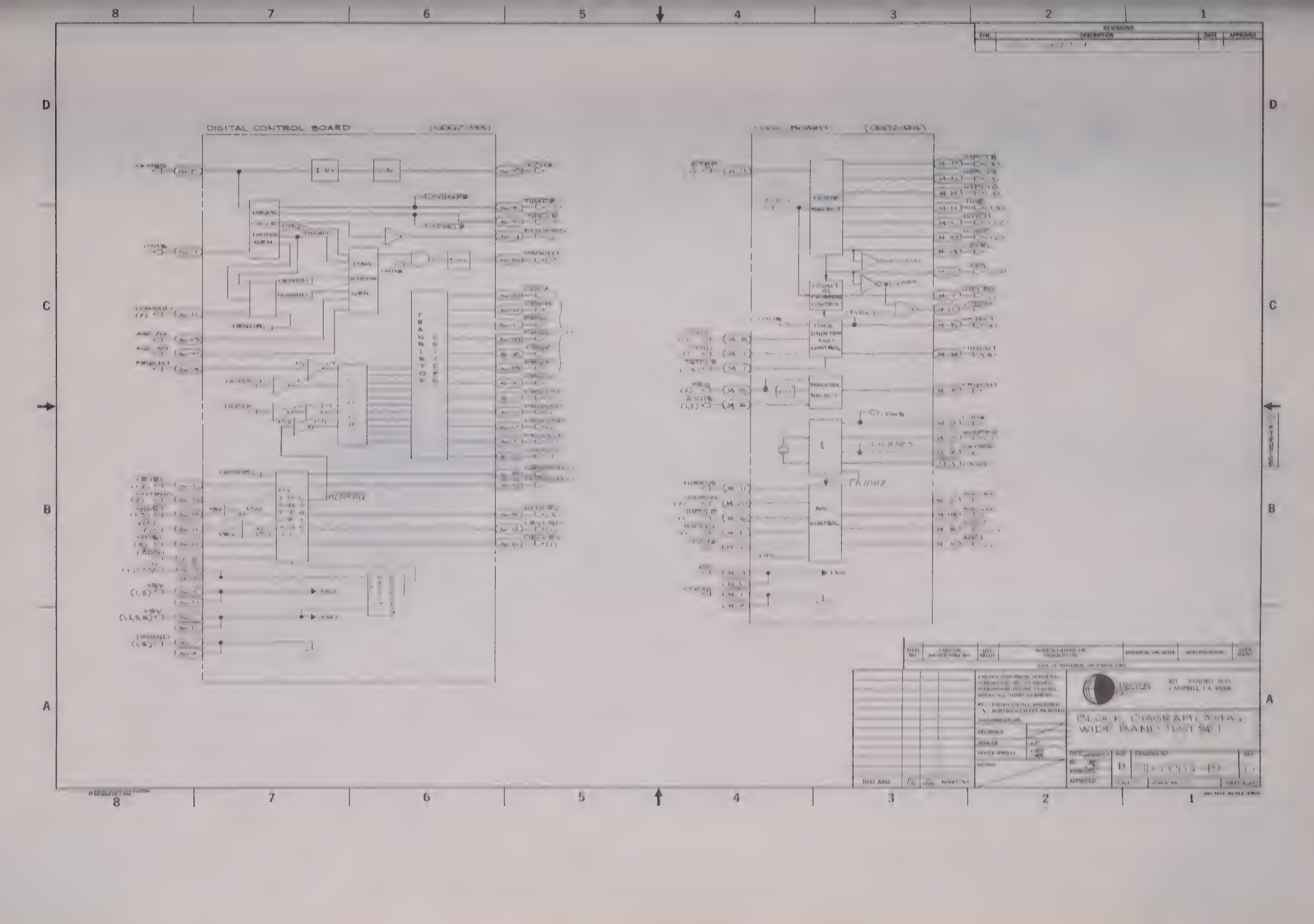
HALCYON INC.
501 VANDELL WAY
CAMPBELL, CA 95008

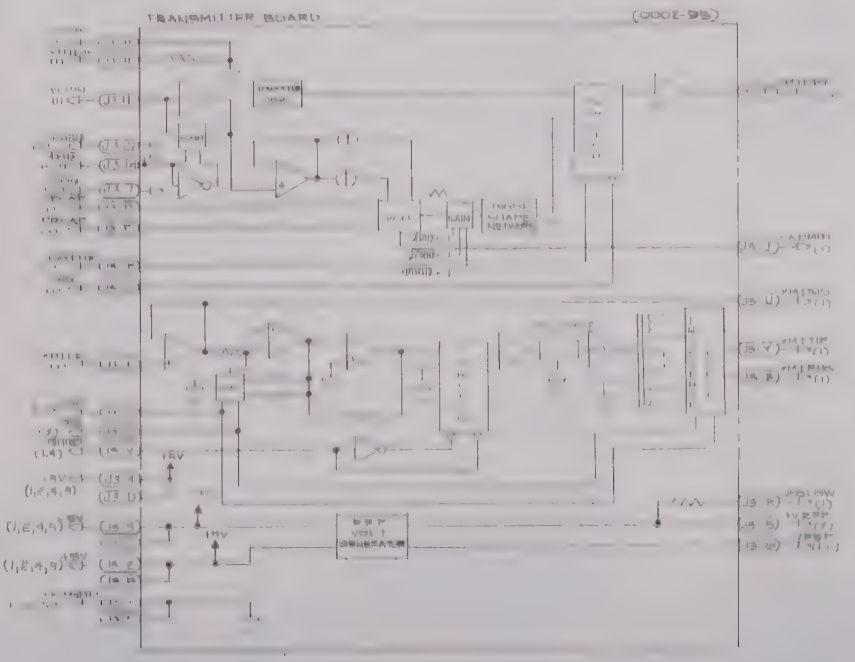
BLOCK DIAGRAM (704A) WIDE BAND TEST SET

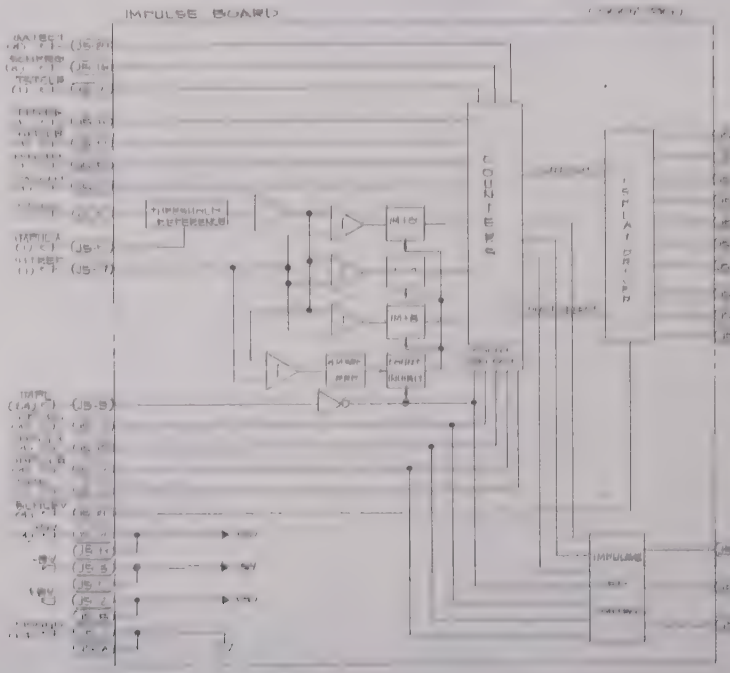
DATE	SIZE	DRAWING NO.	REV.
10 FEB 77	D	BD-0003-49	D
BY			
APPROVED			
APPROVED	SCALE —	STOCK AS —	SHEET 5 OF 5

BD-0003-49 D

DO NOT SCALE DWG.


DIGITAL CONTROL BOARD
REVISIONS
SYM
DESCRIPTION
DATE
APPROVED
8
7
6
5
4
3
2
1
D
C
B
A





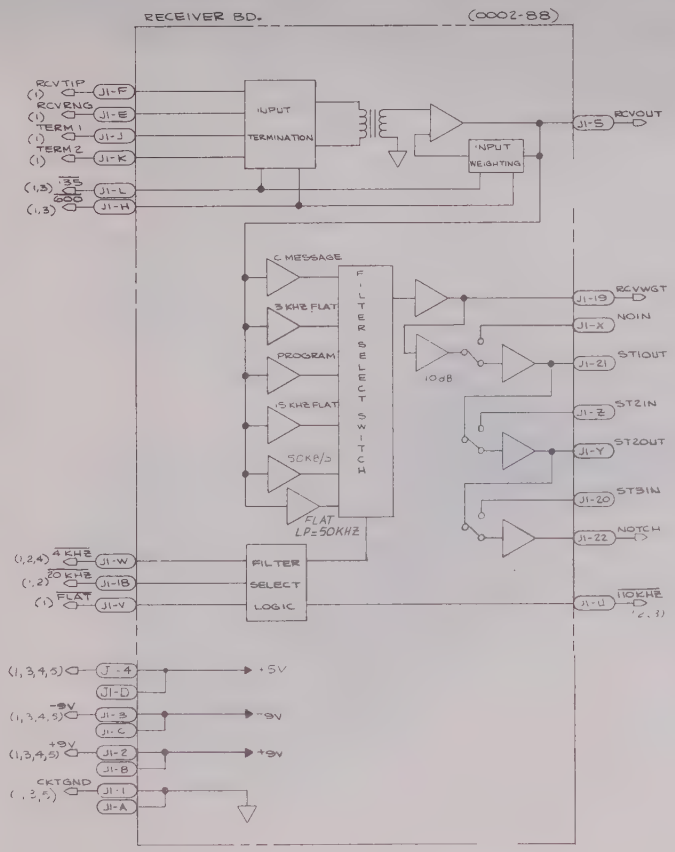
REVISIONS

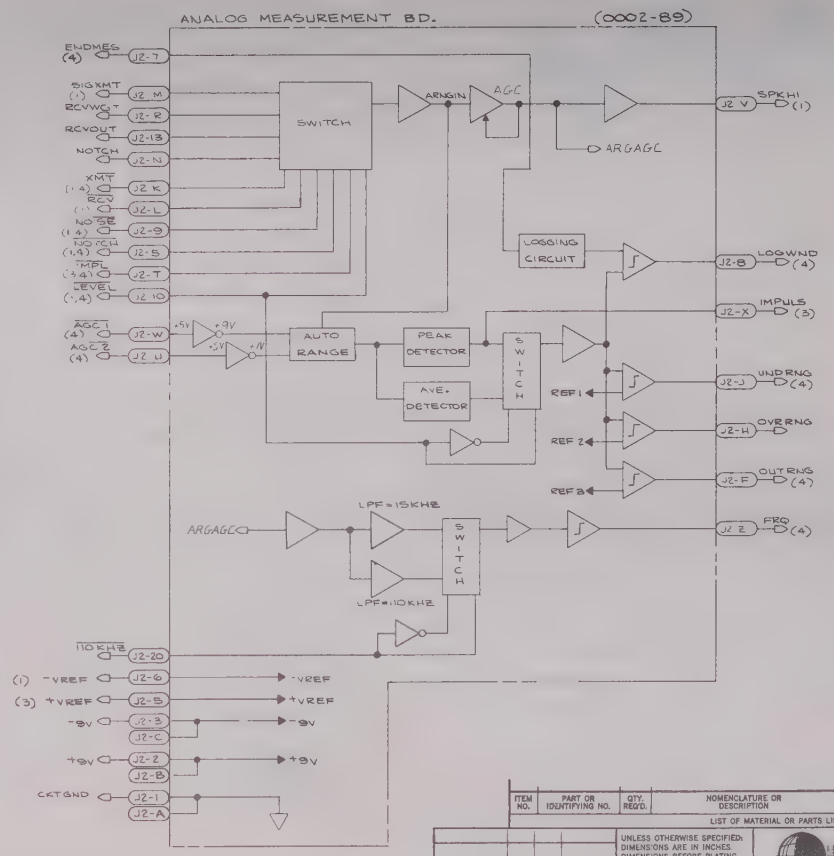
SYM	DESCRIPTION	DATE	APPROVED
	SHEET ONE		

BLOCK DIAGRAM (DAA)
WIDE BAND TEST SET

SIZE D

REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED
	SEE SHEET ONE		





ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.

63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:

DECIMALS	
ANGLES	± 1°
HOLES (DRILL)	+.003 −.001
FINISH	

NEXT ASSY | QTY. REQ'D | QTY. FINAL | MODEL NO.

HALCYON INC. 501 VANDELL WAY CAMPBELL, CA 95008

BLOCK DIAGRAM (704A) WIDE BAND TEST SET

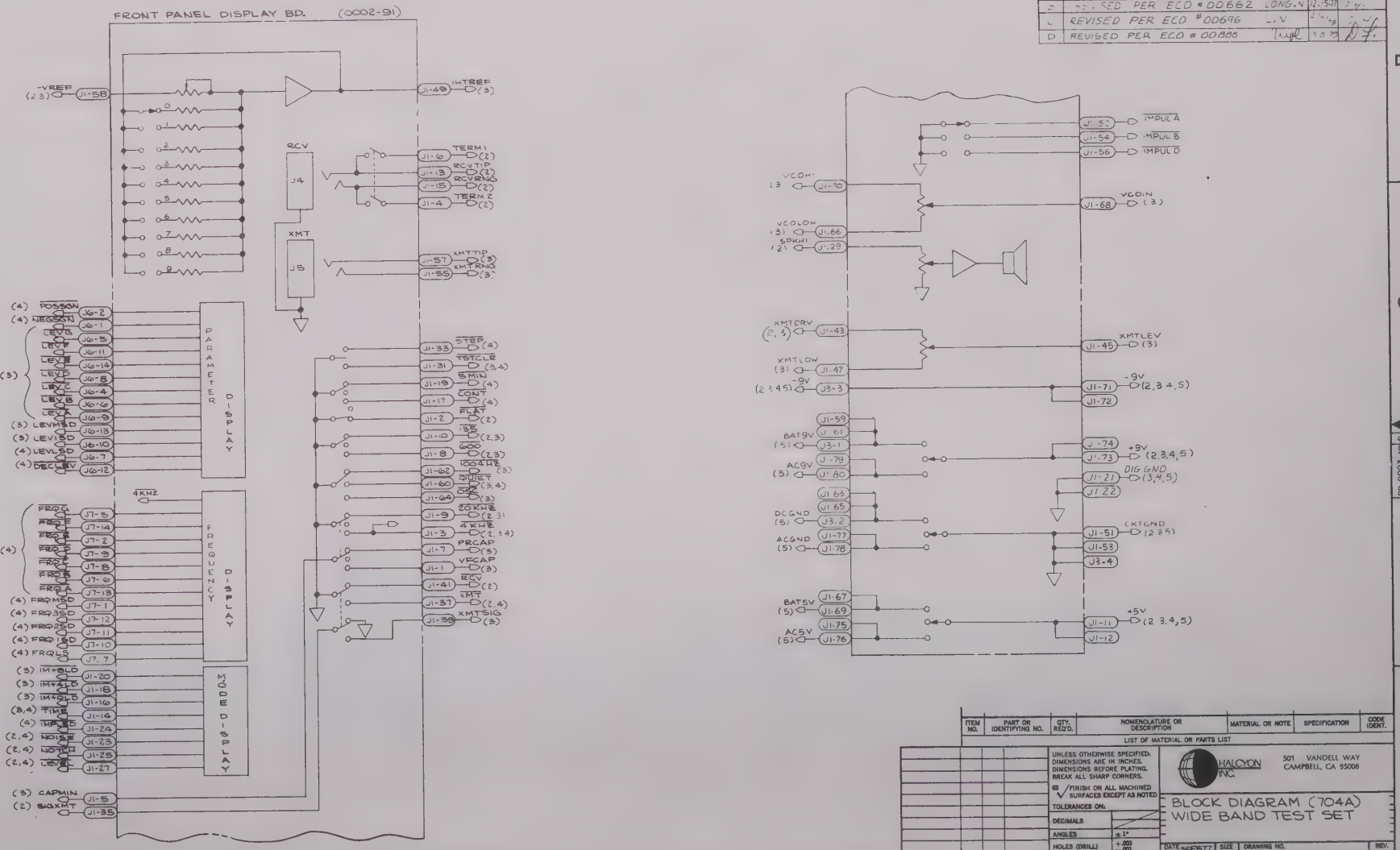
DATE	SIZE	DRAWING NO.	REV
A=6-8-77	D	BD-0003-49	D

BY
APPROVED
APPROVED

SCALE — STOCK AS — SHEET 2 OF 5

DO NOT SCALE DWG

BD-0003-49 (D)



SYM.	DESCRIPTION	DATE	APPROVED
A	PRODUCTION RELEASE RM1	10/27/78	DC
B	REVISED PER ECO # 00662 LONG.N	12-5-77	J.G.
C	REVISED PER ECO # 00696 -.V	2-7-78	J.G.
D	REVISED PER ECO # 00800 TWR	9.5.79	D.F.

ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.
63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED
TOLERANCES ON:
DECIMALS
ANGLES ± 1°
HOLES (DRILL) +.003 -.001
FINISH:

NEXT ASSY. — QTY. NEXT — QTY. FINAL — MODEL NO. 704A

HALCYON INC. 501 VANDELL WAY CAMPBELL, CA 95008

BLOCK DIAGRAM (704A) WIDE BAND TEST SET

DATE 5EB77 BY CS APPROVED APPROVED

SIZE D DRAWING NO. BD-0003-49 REV. D

SCALE — STOCK AS — SHEET 1 OF 2

DO NOT SCALE DWG.

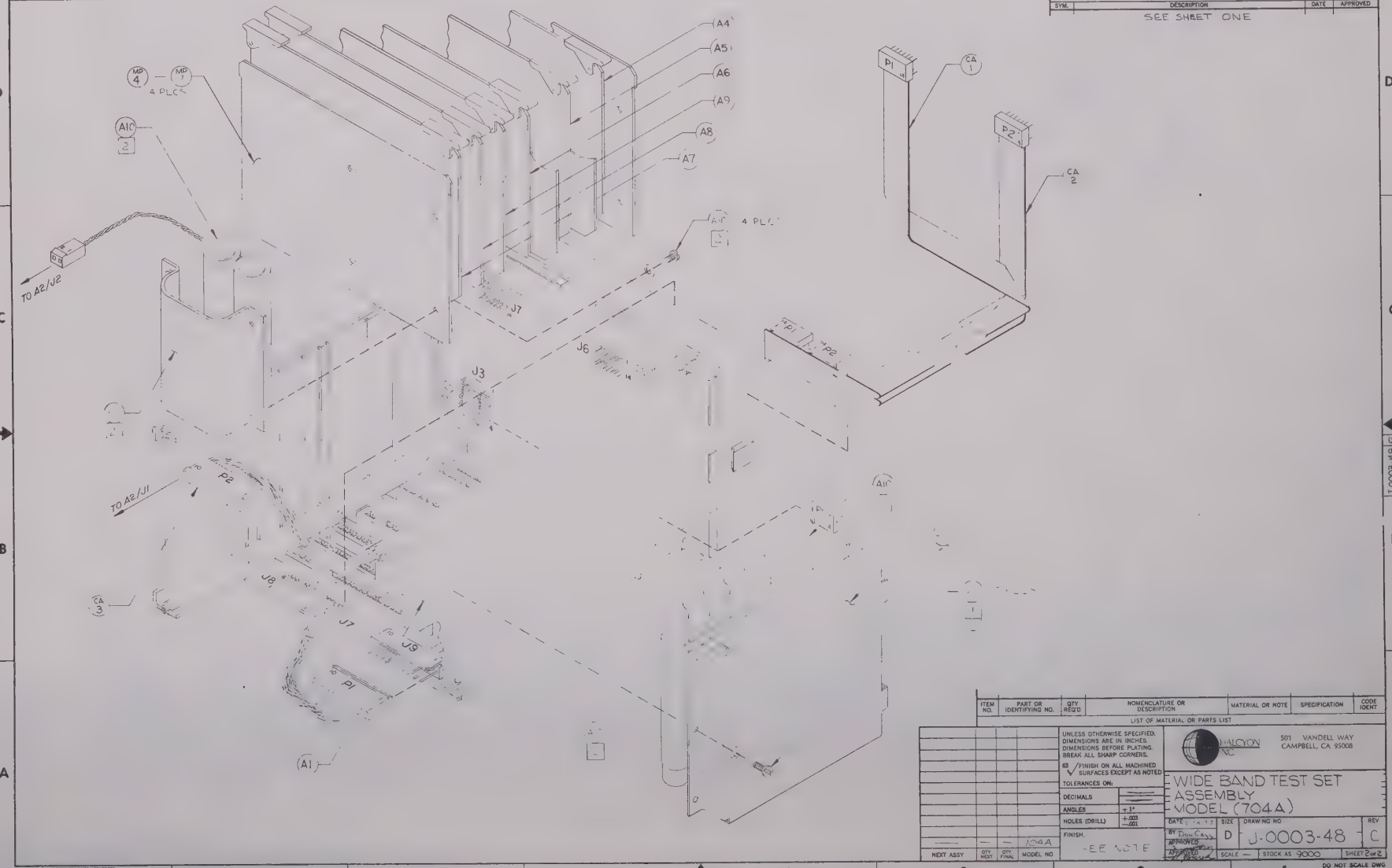
BD-0003-49(C)

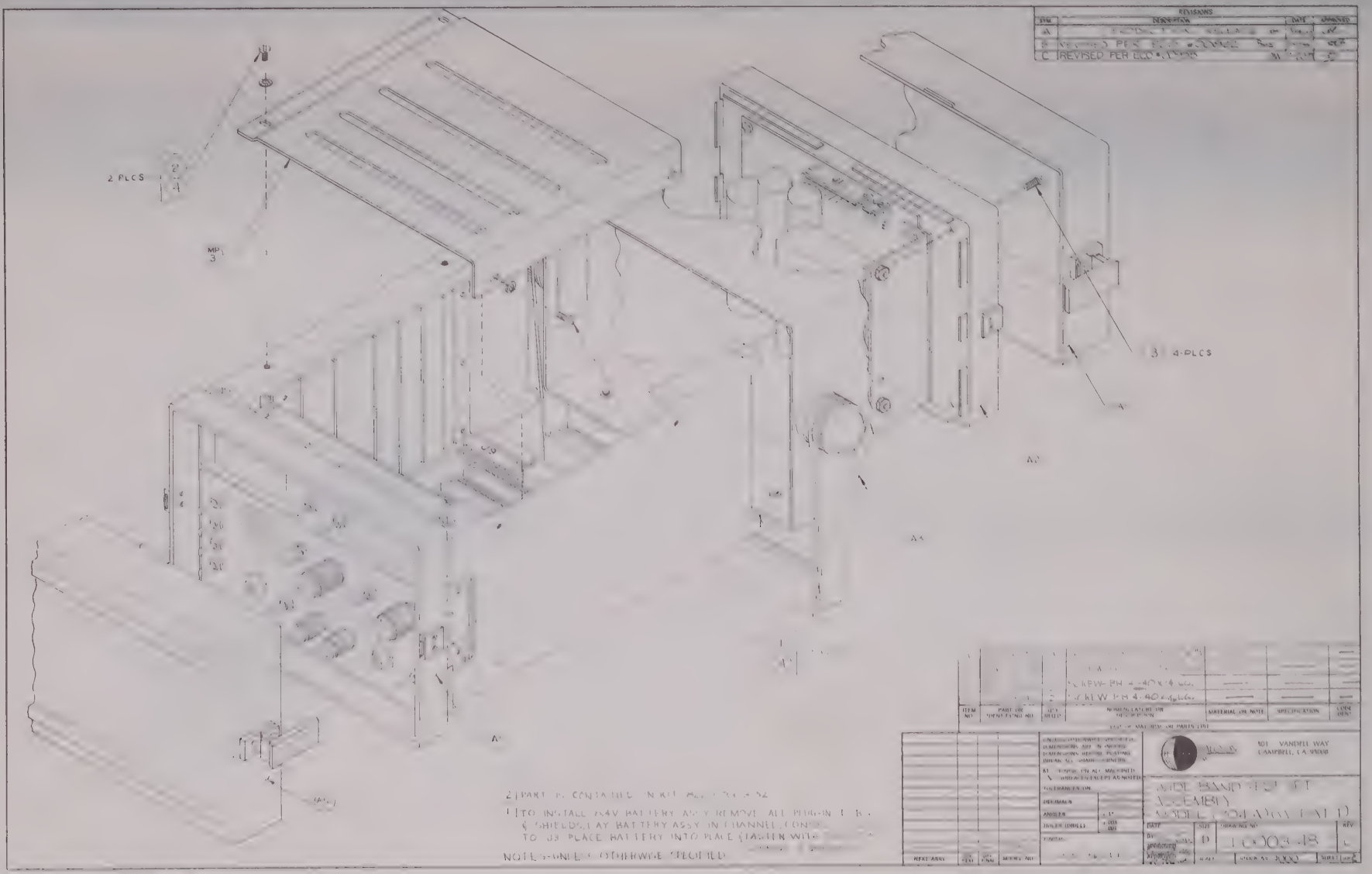
EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 9000-0003-48 PROD-704 WIDE BND TST S UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE:A TYPE: 1 ARC: Y PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CD	S C E	T Y P	S P R	A P C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
010	2500-0003-05		SHIELD PLATE 704A MP4-7		P	1			P	EA	4.00		26-OCT-77			
020	2500-0003-10		COVER PCB 704A MP3		P	1			P	EA	1.00					
030	6010-0003-80	A	CABLE ASSY DC PWR 704A CA3		A	1		x	P	EA	1.00					
035	6010-2153-27		CABLE ASSY 14 PIN CA2		A	1		x	P	EA	1.00					
040	6010-2154-33		CABLE ASSY 24 PIN CA1		A	1		x	P	EA	1.00					
045	8000-0002-88	B	PCB ASSY-RECEIVE BRD A4		A	1		Y	P	EA	1.00					
050	8000-0002-89	B	PCB ASSY-ANALOG MEASUREMENT A5		A	1		Y	P	EA	1.00					
055	8000-0002-90	B	PCB ASSY-IMPULSE BRD A8		A	1		Y	P	EA	1.00					
060	8000-0002-93	B	PCB ASSY-DIGITAL CONT A7		A	1		Y	P	EA	1.00					
065	8000-0002-94	B	PCB-ASSY-LOGIC BOARD A9		A	1		Y	P	EA	1.00					
070	8000-0002-95	B	PCB ASSY-TRANSMIT BRD A6		A	1		Y	P	EA	1.00					
072	8100-0004-92	A	ASSY, COVER & LATCH-REAR A11		A	1		*	P	EA	1.00		29-JAN-79			
073	8100-0004-93	A	ASSY, COVER & LATCH-FRONT A12		A	1		*	P	EA	1.00		29-JAN-79			
075	8200-1122-25	B	ASSY-BACK PANEL MOD 701 A2		A	1		x	P	EA	1.00					
080	8210-0003-65	C	FRONT PANEL ASSY 704A A1		A	1		x	P	EA	1.00					
083	8220-0003-52	A	BATT OPTION KIT 704A A10		A	1		x	P	EA	1.00		26-OCT-77			
085	8500-0004-34	B	ENC ASSY 704 WO/DRH A3		A	1		x	P	EA	1.00					


REVISIONS
SYM. DESCRIPTION DATE APPROVED
SEE SHEET ONE
A4
A5
A6
A9
A8
A7
A10
4 PLCS
MP 4
MP 7
4 PLCS
TO A2/J2
TO A2/J1
P1
P2
CA 1
CA 2
CA 3
J1
J2
J3
J4
J5
J6
J7
J8
J9
A11
A1
ITEM NO. | PART OR IDENTIFYING NO. | QTY REQ'D | NOMENCLATURE OR DESCRIPTION | MATERIAL OR NOTE | SPECIFICATION | CODE IDENT
LIST OF MATERIAL OR PARTS LIST
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.
63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED
TOLERANCES ON:
DECIMALS
ANGLES ± 1°
HOLES (DRILL) +.003 -.001
FINISH: SEE NOTE
NEXT ASSY | QTY NEXT | QTY FINAL | MODEL NO
— | — | 704A
HALCYON INC
501 VANDELL WAY
CAMPBELL, CA 95008
WIDE BAND TEST SET ASSEMBLY MODEL (704A)
DATE 1-14-77
BY Dan Cass
APPROVED
SIZE D
DRAWING NO J-0003-48
REV C
SCALE —
STOCK AS 9000
SHEET 2 of 2
DO NOT SCALE DWG
J-0003-48 C


REVISIONS
2 PLCS
3 4-PLCS
NOTE 3-UNLESS OTHERWISE SPECIFIED
101 VANDELL WAY
CAMPBELL, CA 95008

WIRING LIST WL 0002 – 39 REV B

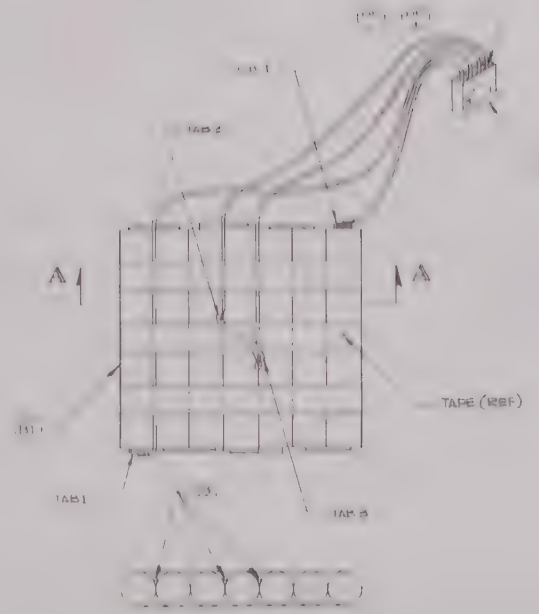
3-11-79 ECO No. 00892 SHEET 1 OF 1

WIRE		FROM		TO		FUNCTION
COLOR	LENGTH	DESIGNATOR	PIN No.	DESIGNATOR	PIN No.	
Red	5"	B2	1 (+)	J1	1	
Blk	5½"	B2	2 (-)	J1	2	

NOTE: Use teflon wire.

004-48

ITEM	DESCRIPTION	DATE	APPROVED
2	INITIAL RELEASE		
1	REVISED PER ECO 00484		
	INITIALLY REVISED, PER		



SECTION A-A

⚠3 PRIOR TO SOLDERING, ROUTE WIRES BETWEEN BATTERY CELLS & UNDER TAPE, IN THESE LOCATIONS.

2. FOR WIRING LIST SEE WL-0002-40

1. FOR LIST OF MATERIALS SEE BB00-0002-40

NOTES - UNLESS OTHERWISE SPECIFIED

ITEM NO	PART OR IDENTIFYING NO	QTY REQ'D	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT
			LIST OF MATERIAL OR PARTS LIST			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS

63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:

DECIMALS

ANGLES ±1°

HOLES (DRILL) +.005 -.001

FINISH SEE NOTES

HALCYON INC. 501 VANDELL WAY CAMPBELL, CA 95008

ASSY- BATTERY 8.4V

DATE 3/4/82 BY E APPROVED

SIZE D | DRAWING NO ED-0002-40 | REV B

SCALE 1/1 | STOCK AS FURNISHED | SHEET 1 OF 1

DO NOT SCALE DWG

NEXT ASSY. | QTY REQ'D | QTY FINAL | MODEL NO 704A 704A

PARENT PART: 8800-0002-40 ASSY BATTERY 8.4V UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: A SRCE CODE: A DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	I Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	2101-0017-04	CON-FEMALE 4 PIN J1			P	1		C	P	EA	1.00					
010	2101-0017-30	CONTACT-PIN MOLEX MP1-4			P	1		D	P	EA	4.00					
015	4000-0015-00	BATTERY-NICAD TWO 8.4VX600MAH B1			P	1			P	EA	1.00					

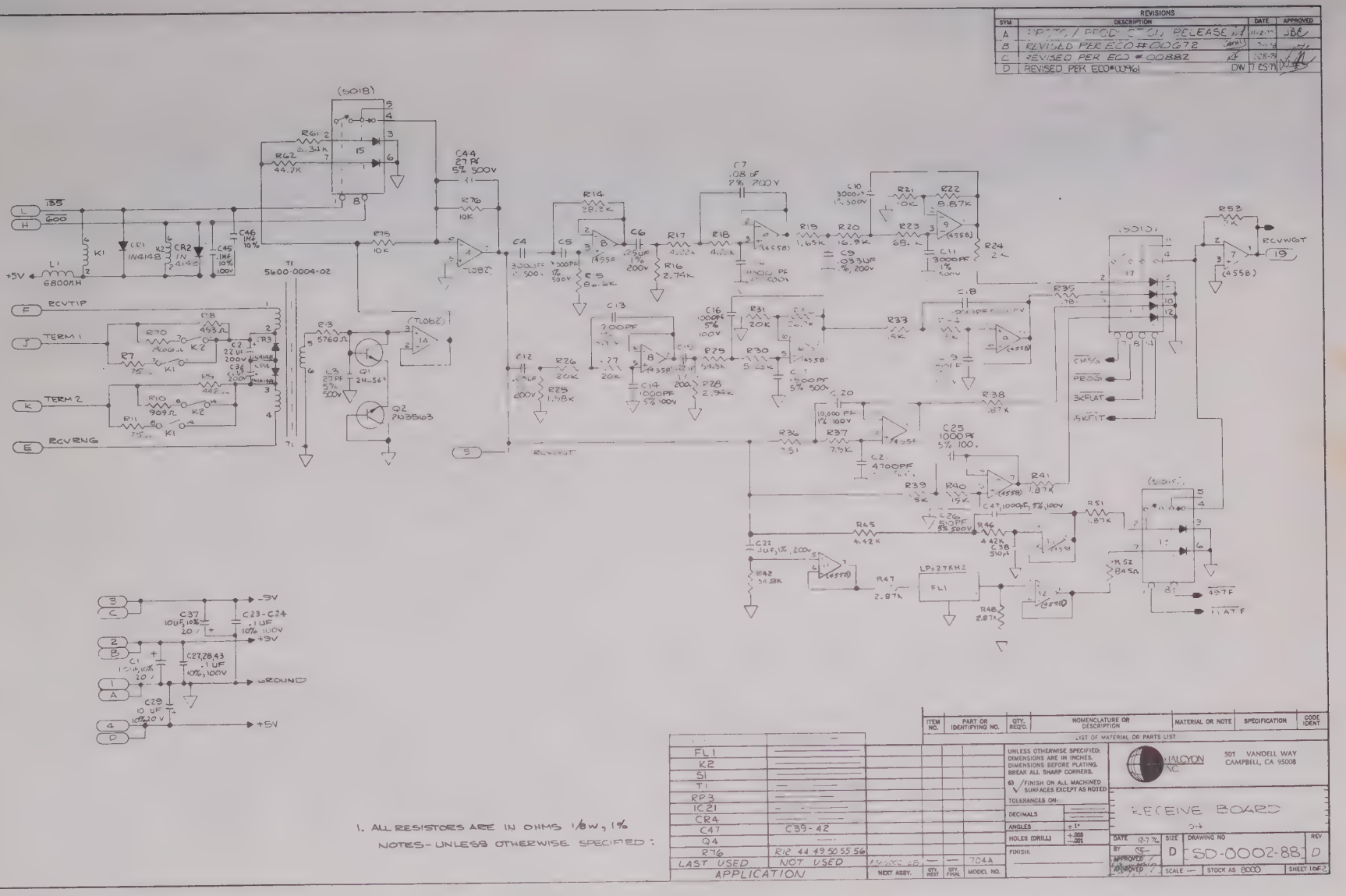
WIRING LIST WL 0002 - 40 REV E

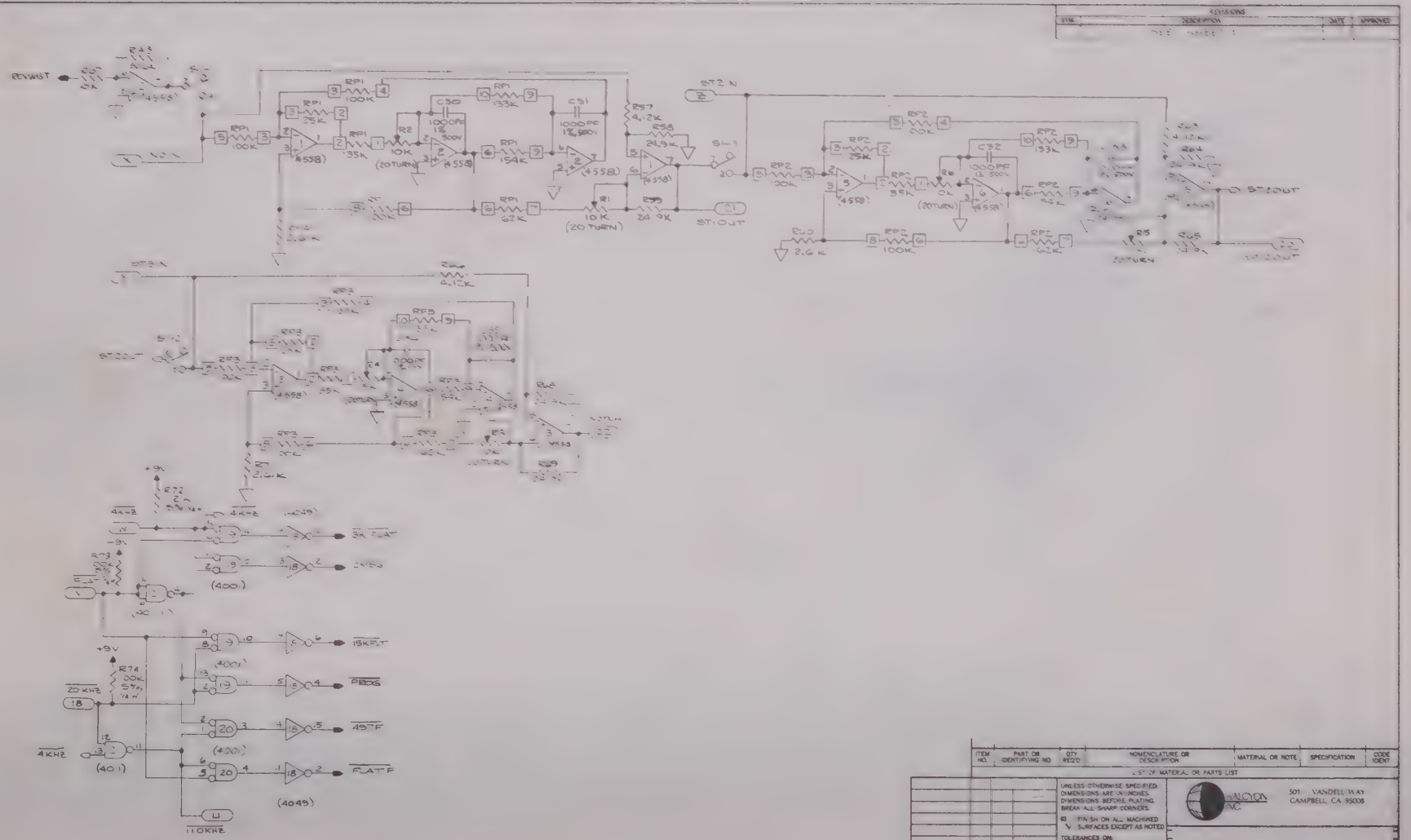
701A

DATE 8-16-79 ECO Nº 00892 SHEET 1 OF 1

WIRE			FROM		TO		FUNCTION
SIZE	COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
24	Wht/Yel	12"	B1	2	J1	1	BAT. 8.4V
24	Wht/Org	15½"	B1	1	J1	3	CKT GND
24	Wht/Red	8"	B1	4	J1	4	DC GND
24	Wht/Brn	12½"	B1	3	J1	2	-8.4V

NOTE: Use teflon wire.


REVISIONS
SYM | DESCRIPTION | DATE | APPROVED
A | RELEASED PER ECO#00672 | 11-2-77 | JBC
B | REVISED PER ECO#00672 | 3-3-78 | JBC
C | REVISED PER ECO #00887 | 3-28-78 | JBC
D | REVISED PER ECO#00961 | DW | 2-5-79 | JBC
(5018)
T1 5600-0004-02
TL082
4558
+5V
L1 6800uH
RCVTIP
TERM 1
TERM 2
RCVRNG
RCVOUT
RCVWGT
CMOS
PECL
3KFLAT
5KFLT
497F
11.47F
-9V
+9V
GROUND
+5V
LP=27KHZ
FL1
1. ALL RESISTORS ARE IN OHMS 1/8W, 1%
NOTES- UNLESS OTHERWISE SPECIFIED:
FL1
K2
S1
T1
RP3
IC21
CR4
C47
Q4
R76
LAST USED
APPLICATION
NOT USED
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.
TOLERANCES ON:
DECIMALS
ANGLES ±1°
HOLES (DRILL) +.005 -.001
FINISH:
ITEM NO. | PART OR IDENTIFYING NO. | QTY. REQ'D. | NOMENCLATURE OR DESCRIPTION | MATERIAL OR NOTE | SPECIFICATION | CODE IDENT
LIST OF MATERIAL OR PARTS LIST
HALCYON INC
501 VANDELL WAY
CAMPBELL, CA 95008
RECEIVE BOARD
DATE 12-7-78
SIZE D
DRAWING NO SD-0002-88
REV D
SCALE —
STOCK AS 8000
SHEET 1 OF 2



ITEM NO.	PART OR IDENTIFYING NO.	QTY REQ'D	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
DIMENSIONS BEFORE PLATING
BREAK ALL SHARP CORNERS

63 FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:

DECIMALS	
ANGLES	± 1°
HOLES (DRILL)	+.003 −.001
FINISH	

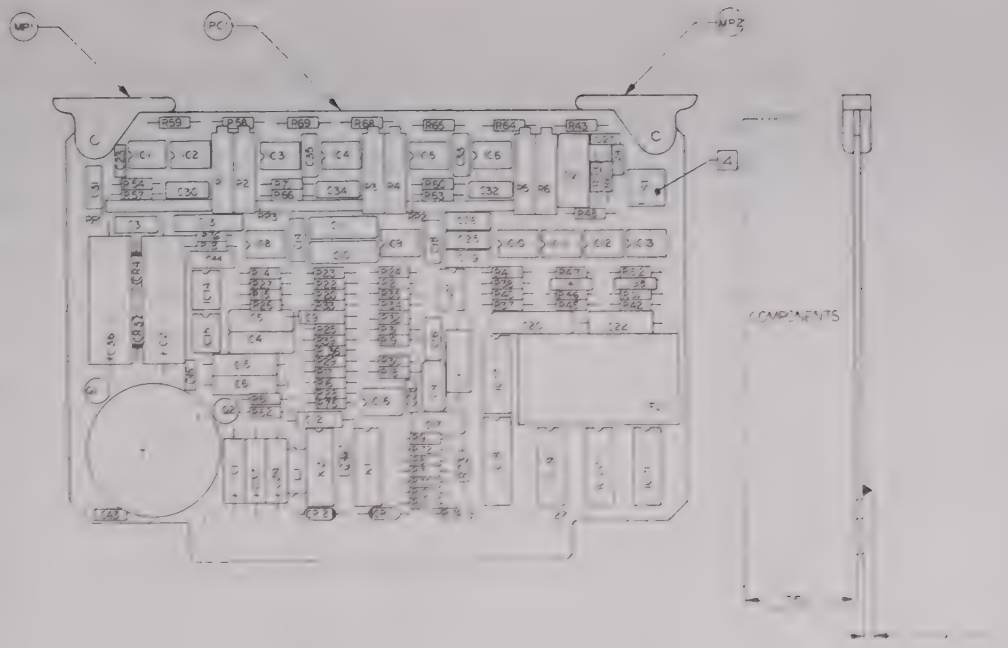
NEXT ASSY | QTY. REQ'D | QTY. FINAL | MODEL NO.

501 VANDELL WAY
CAMPBELL, CA 95008

RECEIVE BOARD
(704)

DATE	SIZE	DRAWING NO	REV
BY —	D	SD-0002-881	D
APPROVED —			
APPROVED —	SCALE —	STOCK AS —	SHEET 2 of 2

ZONE	REV.	DESCRIPTION	DATE	APPROVED
–	B	REVISED PER ECO #00672	2/17/78	
–	C	REVISED PER ECO #00882	2-28-79	
–	D	REVISED PER ECO #00961	7-25-79	



4 S1 TO BE HAND SOLDERED AND DO NOT IMMERSE IN SOLVENT.
3 SQUARE PAD DENOTES CATHODE END OF DIODE, POS SIDE OF CAP, EMITTER OF TRANSISTOR OR GATE OF FET.
[illegible] OF MATERIALS SEE 8111-0002B8.
[illegible] SEE 50-0002B8.
[illegible] UNLESS OTHERWISE SPECIFIED

9000-0003-49	704
9000-0003-48	704
9000-0003-73	704
9000-0003-74	704

P.C.B. ASSEMBLY
RECEIVE BOARD
(704)
ED-0002-88 D

EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-88 PCB ASSY-RECEIVE BRD UM: EA PROD CODE: JB ECN: ASSEMBLY QTY: 1
ERC: D SRCE CODE:A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CD	S C E	T Y P R	S P C	A P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	1401-0011-00		EJECTOR-PCB MP1,2		P	1	A	P	EA	2.00					
007	1500-0062-00		C-FXD MICA 27PF 5% 500V C3,44		P	1	A	P	EA	2.00		02-MAR-79			
015	1500-0149-00		C-FXD MICA 510 PF 5% 500V C19,26,38		P	1	A	P	EA	3.00		31-JUL-79			
020	1500-0156-00		C-FXD MICA 1000PF 5% 100V C14,16,18,25,47		P	1	A	P	EA	5.00		11-NOV-77			
025	1500-0199-00		C-FXD MICA 1200PF 5% 500V C13		P	1	A	P	EA	1.00					
030	1500-0201-00		C-FXD MICA 1500PF 5% 500V C17		P	1	A	P	EA	1.00					
033	1500-0203-00		C-FXD MICA 1800PF 5% 500V C8		P	1	A	P	EA	1.00		02-MAR-79			
035	1500-0214-00		C-FXD MICA 4700PF 5% 500V C21		P	1	A	P	EA	1.00					
043	1500-5198-00		C-FXD MICA 1000PF 1% C30-35		P	*	A	P	EA	6.00		11-NOV-77			
045	1500-5209-00		C-FXD MICA 3000PF 1% 500V C,4,5,10,11		P	1	A	P	EA	4.00					
050	1501-0074-00		C-FXD CER .1UF 10% 100V C23,24,27,28,43,45 AND C46		P	1	A	P	EA	7.00		11-NOV-77			
055	1502-0019-00		C-FXD MET POLY 0.033UF 1% C9		P	1	A	P	EA	1.00					
060	1502-0025-00		C-FXD MET POLY 0.1UF 1% C22		P	1	A	P	EA	1.00					
065	1502-0029-00		C-FXD MET POLY 0.22UF 1% C15		P	1	A	P	EA	1.00					
070	1502-0046-00		C-FXD MET POLY 0.25UF 1% C6		P	1	A	P	EA	1.00					
075	1502-0049-00		C-FXD MET POLY .05UF 1% C12		P	1	A	P	EA	1.00					
077	1502-0300-08		C-FXD MET POLY 2% .08UF C7		P	1	A	P	EA	1.00		02-MAR-79			
080	1503-0181-00	1	C-FXD TA 10UF 10% 20WVDC C1,29,37		P	1	A	P	EA	3.00					
085	1504-0108-00		C-FXD AL ELECT 22UF 200 C2,36		P	1	A	P	EA	2.00					
090	1505-0003-00		C-FXD MICA 10000PF 1% 100V C20		P	1	A	P	EA	1.00					
095	1700-0002-88		PCB-FAB-RECEIVE BRD PC1		P	1	A	P	EA	1.00					
097	1800-0059-00		COIL-FXD RF 6800UH 10% L1		P	1	A	P	EA	1.00		11-NOV-77			
100	2101-0000-00		CON-8 PIN IC SCK SKT1=16		P	1	A	P	EA	16.00					
105	2101-0000-01		CON-14 PIN IC SCK LO PR		P	1	A	P	EA	4.00					

PARENT PART: 8000-0002-86 PCB ASSY-RECEIVE BRD UM: EA PROD CODE: JB ECN: ASSEMBLY QTY: 1
ENG: D SRCE CODE: A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E N G	PART DESCRIPTION / REMARKS	PR CD	C E	Y P	S P R	A P C	L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
			SKT18													
115	2700-0100-00		FILTER-LPF 27KHZ 497F FL1		P	1		A	P	EA	1.00					
120	3130-4001-00		IC-4001 QUAD 2 IN NOR MOS IC19,20		P	1		A	P	EA	2.00					
125	3130-4011-00		IC-4011 QUAD 2 IN NAND MOS IC21		P	1		A	P	EA	1.00					
130	3130-4049-00		IC-4049 HEX INV BUFFER MOS IC18		P	1		A	P	EA	1.00					
135	3131-0005-00		IC-1458 LINEAR OP AMP DUAL IC1-12,16		P	1		A	P	EA	15.00		11-NOV-77			
140	3131-0008-00		IC-TL082 JFET OP AMP IC14		P	1		A	P	EA	1.00		11-NOV-77			
145	3132-0004-01		IC-5010P-CHNL ANALOG SEW IC17		P	1		A	P	EA	1.00					
150	3132-0004-03		IC-5018P-CHNL ANALOG SW IC13,15		P	1		A	P	EA	2.00					
155	4500-0001-00		RELAY-REED 2 FORM A 5VDC K1,2		P	1		A	P	EA	2.00					
163	4700-0425-00		R-FXD CC 12K OHM 5% 1/4W R72		P	1		A	P	EA	1.00		11-NOV-77			
170	4700-0445-00		R-FXD CC 100K OHM 5% 1/4W R73,74		P	1		A	P	EA	2.00					
174	4703-0085-00		R-FXD MF 75 OHMS 1% R7,11		P	1		A	P	EA	2.00		07-MAR-78			
179	4703-0159-00		R-FXD MF 442 OHM 1% 1/8W R9		P	1		A	P	EA	1.00		07-MAR-78			
180	4703-0160-00		R-FXD MF 453 OHM 1% 1/8W R8		P	1		A	P	EA	1.00		07-MAR-78			
183	4703-0186-00		R-FXD MF 845 OHM 1% 1/8W R52		P	1		A	P	EA	1.00		11-NOV-77			
184	4703-0187-00		R-FXD MF 866 OHM 1% 1/8W R70		P	1		A	P	EA	1.00		07-MAR-78			
185	4703-0189-00		R-FXD MF 909 OHM 1% 1/8W R10		P	1		A	P	EA	1.00		07-MAR-78			
195	4703-0212-00		R-FXD MF 1580 OHM 1% 1/8W R25		P	1		A	P	EA	1.00					
200	4703-0214-00		R-FXD MF 1650 OHM 1% 1/8W R19		P	1		A	P	EA	1.00					
201	4703-0217-00		R-FXD MF 1780 OHM 1% 1/8W R35		P	1		A	P	EA	1.00		11-NOV-77			
202	4703-0219-00		R-FXD MF 1870 OHM 1% 1/8W R38,41,51		P	1		A	P	EA	3.00		11-NOV-77			
203	4703-0222-00		R-FXD MF 2000 OHM 1% 1/8W R24,R53		P	1		A	P	EA	2.00		11-NOV-77			
205	4703-0233-00		R-FXD MF 2610 OHM 1% 1/8W R54,60,71		P	1		A	P	EA	3.00					
210	4703-0235-00		R-FXD MF 2740 OHM 1% 1/8W R16		P	1		A	P	EA	1.00					
215	4703-0237-00		R-FXD MF 2870 OHM 1% 1/8W		P	1		A	P	EA	2.00					

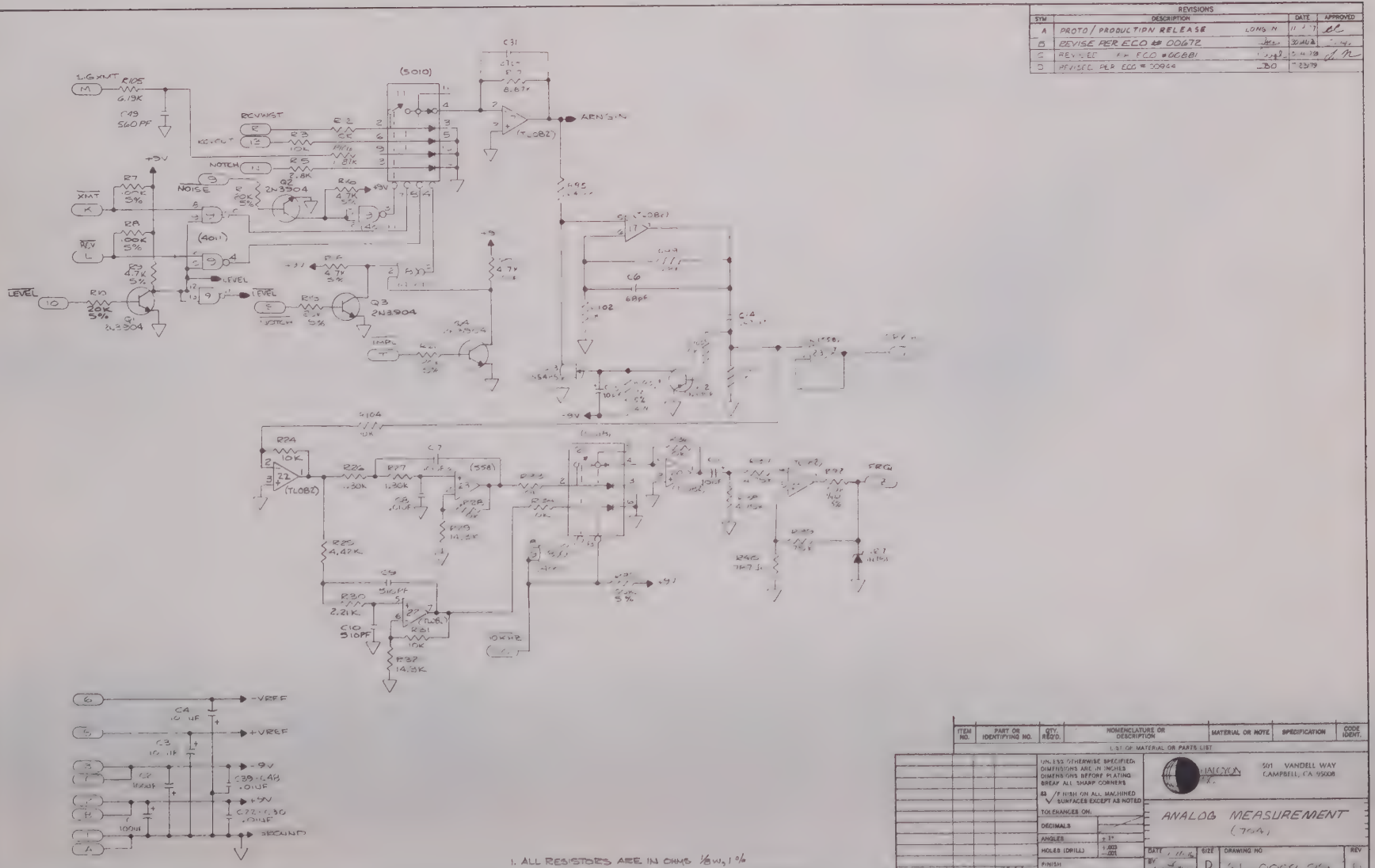
EFFECTIVITY DATE: ALL SINGLE LEVEL BILL OF MATERIAL

PARENT PART: 8000-0002-AA PCB ASSY-RECEIVE BKD UNIT: EA PROD CODE: JA BENT ASSEMBLY QTY: 1
REV: D SPEC CODE: A TYPE: 1 PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PART#	R E F	PART DESCRIPTION / REMARKS	MN CD	S E L P	S T Y P	S A F E	P M I C	U/M	EXTENDED QTY PER	ECN CHG	GIANT DATE	R/N	CLUBB DATE	R/N
			R47,48												
220	4703-0258-00		R=FXD MF 2940 OHM 1% 1/8W		P	1	N	P	EA	1.00					
			R34												
225	4703-0261-00		R=FXD MF 3160 OHM 1% 1/8W		P	1	N	P	EA	1.00					
			R41												
230	4703-0263-00		R=FXD MF 4120 OHM 1% 1/8W		P	1	N	P	EA	1.00		07=MAR=78			
			R51,53,56												
235	4703-0265-00		R=FXD MF 4220 OHM 1% 1/8W		P	1	N	P	EA	2.00		02=MAR=79			
			R17,18												
240	4703-0265-00		R=FXD MF 4420 OHM 1% 1/8W		P	1	N	P	EA	2.00		02=MAR=79			
			R43,46												
245	4703-0268-00		R=FXD MF 5230 OHM 1% 1/8W		P	1	N	P	EA	1.00		07=MAR=78			
			R10												
250	4703-0269-00		R=FXD MF 5760 OHM 1% 1/8W		P	1	N	P	EA	1.00		11=NOV=77			
			R15												
255	4703-0270-00		R=FXD MF 6340 OHM 1% 1/8W		P	1	N	P	EA	1.00		07=MAR=78			
			R61												
260	4703-0277-00		R=FXD MF 7500 OHM 1% 1/8W		P	1	N	P	EA	2.00					
			R36,37												
265	4703-0284-00		R=FXD MF 8870 OHM 1% 1/8W		P	1	N	P	EA	1.00					
			R22												
270	4703-0289-00		R=FXD MF 10.0K OHM 1% 1/8W		P	1	N	P	EA	4.00		11=NOV=77			
			R21,67,75,76												
275	4703-0290-00		R=FXD MF 15.0K OHM 1% 1/8W		P	1	N	P	EA	4.00					
			R33,34,39,40												
280	4703-0311-00		R=FXD MF 16.9K OHM 1% 1/8W		P	1	N	P	EA	1.00					
			R20												
285	4703-0318-00		R=FXD MF 20.0K OHM 1% 1/8W		P	1	N	P	EA	1.00					
			R26,27,51												
290	4703-0327-00		R=FXD MF 24.9K OHM 1% 1/8W		P	1	N	P	EA	3.00					
			R58,59,64,65,68,69												
295	4703-0330-00		R=FXD MF 26.7K OHM 1% 1/8W		P	1	N	P	EA	1.00					
			R32												
300	4703-0341-00		R=FXD MF 34.8K OHM 1% 1/8W		P	1	N	P	EA	1.00					
			R42												
305	4703-0345-00		R=FXD MF 38.3K OHM 1% 1/8W		P	1	N	P	EA	1.00					
			R14												
310	4703-0351-00		R=FXD MF 44.2K OHM 1% 1/8W		P	1	N	P	EA	1.00		07=MAR=78			
			R62												
315	4703-0360-00		R=FXD MF 56.9K OHM 1% 1/8W		P	1	N	P	EA	1.00		07=MAR=78			
			R29												
320	4703-0369-00		R=FXD MF 68.1K OHM 1% 1/8W		P	1	N	P	EA	1.00					
			R28												
325	4703-0379-00		R=FXD MF 86.6K OHM 1% 1/8W		P	1	N	P	EA	1.00					
			R15												
330	4710-0008-00		R=PACK RCD NET 10 PIN 1%		P	1	N	P	EA	3.00					
			RP1,2,3												
335	4750-0029-00		R=VAR 20 TURN 5K OHM		P	1	N	P	EA	1.00					

PARENT PARTS 8000-0002-AA PCB ASSY-RECEIVE HRD UNIT EA PROD CODES JB ECNS ASSEMBLY QTYS 1
ENGR D SRCE CODE SA TYPE 1 ABC A PLAN CODE P DATE 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CD	C F	Y P	S P N	A R C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
			R1-5,5,6													
335	4800-3565-00		TSTR-NPN SI AM 2N3565 Q1,2		P	1		A	P	EA	2.00					
345	4802-4148-00		DIODE-SWITCHING 1N4148 CR1-4		P	1		A	P	EA	4.00		07-MAR-78			
350	5100-5151-00		SW-ROCKER DIP 8 PINS S1		P	1		A	P	EA	1.00					
355	5600-0004-02		XFMR-SIGNAL INPUT T1		P	1		A	P	EA	1.00					



REVISIONS				
SYM	DESCRIPTION		DATE	APPROVED
A	PROTO / PRODUCTION RELEASE	LONG N	11-1-77	
B	REVISE PER ECO # 00672		30 JAN 78	
C	REVISED PER ECO #00881		5 MAY 78	
D	REVISED PER ECO # 30904	BO	23/79	

NOTES-UNLESS OTHERWISE SPECIFIED

1. ALL RESISTORS ARE IN OHMS 1/8W, 1%

ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.
LIST OF MATERIAL OR PARTS LIST						

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS. 63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED. TOLERANCES ON: DECIMALS ± ANGLES ± 1° HOLES (DRILL) +.003 -.001 FINISH

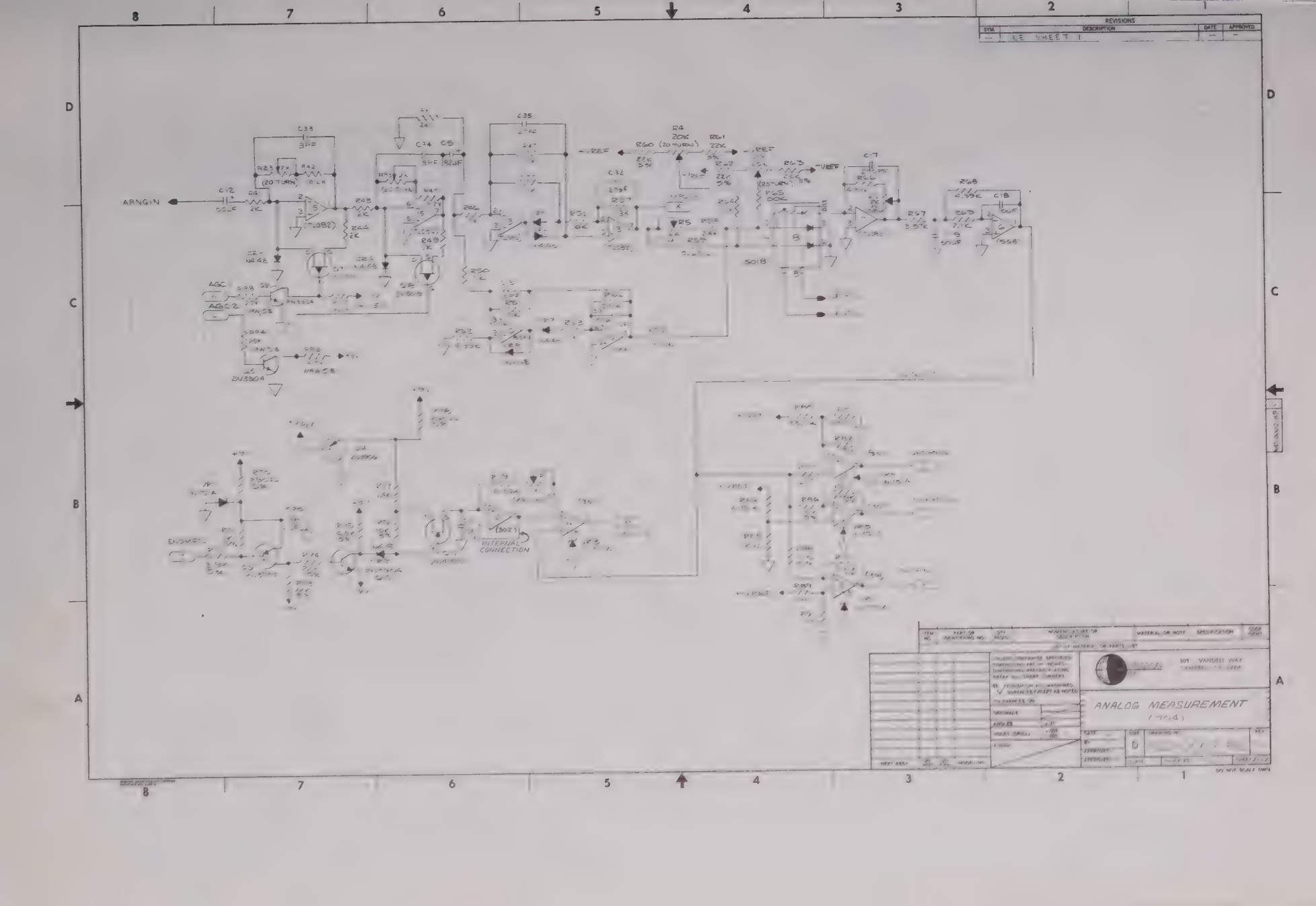
HALCYON INC. 501 VANDELL WAY CAMPBELL, CA 95008

ANALOG MEASUREMENT (7014)

DATE 11-1-77 | SIZE D | DRAWING NO. [illegible] | REV D

SCALE | STOCK AS - | SHEET 1 OF 2

NEXT ASSY | QTY. NEXT | QTY. FINAL | MODEL NO. 7014


REVISIONS
SYM
DESCRIPTION
DATE
APPROVED
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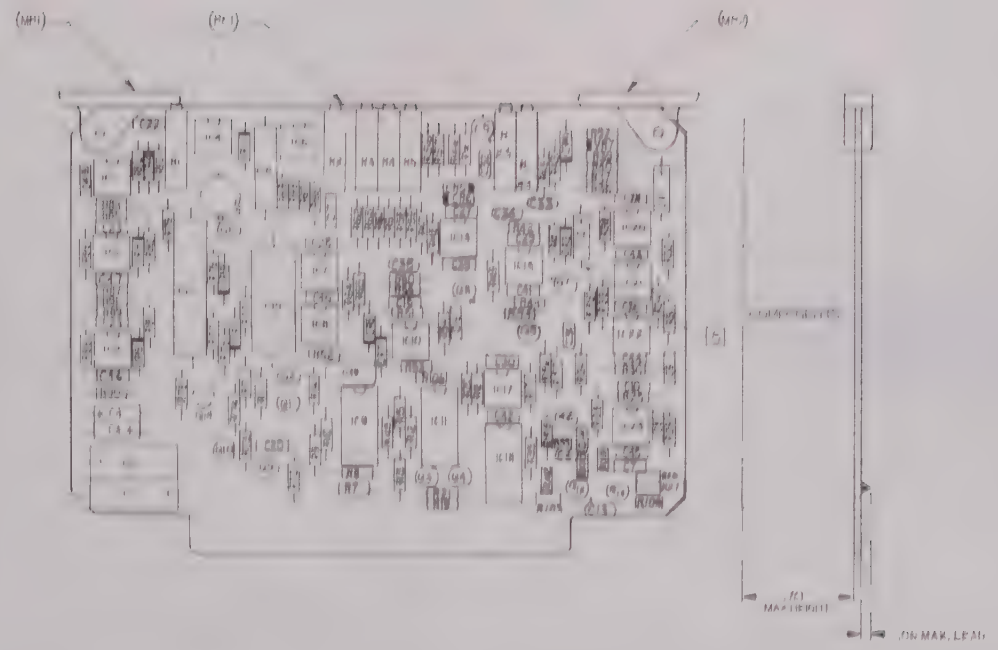
AGC
AGC2
2N3904
INTERNAL CONNECTION
ANALOG MEASUREMENT
(7044)



NOTES: UNLESS OTHERWISE SPECIFIED

PCB ASSEMBLY

PARENT PART: 8000-0002-89 PCB ASSY-ANALOG MEASUREMENT UM: EA PROD CODE: JB ECN: ASSEMBLY QTY: 1
ERC: D SRCE CODE:A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	1401-0011-00		EJECTOR-PCB MP1,2	ZZ	P	1		B	P	EA	2.00					
008	1500-0053-00		C-FXD MICA 3PF 5% 500V C33,34	ZZ	P	1		B	P	EA	2.00		07-MAR-78			
010	1500-0055-00		C-FXD MICA 10PF 5% 500V C15	ZZ	P	1		B	P	EA	1.00					
013	1500-0062-00		C-FXD MICA 27PF 5% 500V C31,32,35	ZZ	P	1		B	P	EA	3.00		04-NOV-77			
014	1500-0073-00		C-FXD MICA 68PF 5% 500V C6	ZZ	P	1		B	P	EA	1.00		04-NOV-77			
015	1500-0141-00		C-FXD MICA 270PF 5% 500V C17	ZZ	P	1		B	P	EA	1.00					
020	1500-0149-00		C-FXD MICA 510 PF 5% 500V C9,10	ZZ	P	1		B	P	EA	2.00		28-AUG-79			
022	1500-0150-00		C-FXD MICA 560PF 5% 300V C49	ZZ	P	1		B	P	EA	1.00		07-MAR-78			
025	1501-0062-00		C-FXD CER 10000PF 10% C7,8,22-30,39-48	ZZ	P	1		B	P	EA	21.00					
030	1501-0074-00		C-FXD CER .1UF 10% 100V C16,20	ZZ	P	1		B	P	EA	2.00					
032	1501-0082-00		C-FXD CER .47UF 10% 50V C14	ZZ	P	1		B	P	EA	1.00		04-NOV-77			
035	1502-0037-00		C-FXD MET POLY 1.0UF 1% C21	ZZ	P	1		B	P	EA	1.00					
037	1503-0044-07		C-FXD TA 10UF 20V 10% C13	ZZ	P	1		B	P	EA	1.00		16-MAR-79			
040	1504-0044-00		C-FXD AL ELECT 100UF 25V C1,2,12	ZZ	P	1		B	P	EA	3.00					
045	1504-0052-00		C-FXD AL ELECT 10UF 35V C3,4,11	ZZ	P	1		B	P	EA	3.00		16-MAR-79			
050	1505-0005-01		C-FXD TA 82UF +/-20% 15VDC C5	JH	P	1		B	P	EA	1.00		07-MAR-78			
055	1505-0006-00		C-FXD NON POLAR 50UF 15V C19	ZZ	P	1		B	P	EA	1.00					
060	1505-0007-00		C-FXD NON POLAR 10UF 15V C18	ZZ	P	1		B	P	EA	1.00					
065	1700-0002-89		PCB-ANALOG MEASUREMENT PC1	JH	P	1		A	P	EA	1.00					
070	2101-0000-00		CON-8 PIN IC SCK SKT1-4,6-8,10,13,15, 17,20-23	ZZ	P	1		B	P	EA	15.00		07-MAR-78			
075	2101-0000-01		CON-14 PIN IC SCK LO PR SKT, 9,11,18	ZZ	P	1		B	P	EA	3.00					
080	3130-4001-00		IC-4001 QUAD 2 IN NOR MOS IC18	ZZ	P	1		B	P	EA	1.00					
085	3130-4011-00		IC-4011 QUAD 2 IN NAND MOS IC9	ZZ	P	1		B	P	EA	1.00					
090	3131-0001-01		IC-301 LINEAR OP AMP MINI IC1-4	ZZ	P	1		B	P	EA	4.00					
095	3131-0002-00		IC-302 LINEAR OP AMP	ZZ	P	1		B	P	EA	1.00					

EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-89 PCB ASSY-ANALOG MEASUREMENT UM: EA PROD CODE: JB ECN: ASSEMBLY QTY: 1
ERC: D SRCE CODE:A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	ERC	PART DESCRIPTION / REMARKS	PR CD	STYP	SRC	ABC	FBL	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
100	3131-0005-00		IC-1458 LINEAR OP AMP DUAL IC5	ZZ	P	1	A	P	EA	3.00					
105	3131-0008-00		IC-TL082 JFET OP AMP IC6,10,23	ZZ	P	1	B	P	EA	6.00					
110	3132-0004-01		IC-5010P-CHNL ANALOG SEW IC7,13,15,17,20,22	ZZ	P	1	B	P	EA	1.00					
115	3132-0004-03		IC-5018P-CHNL ANALOG SW IC11	ZZ	P	1	A	P	EA	2.00					
125	4700-0387-00		R-FXD CC 390 OHM 5% 1/4W IC8,21	ZZ	P	1	B	P	EA	2.00					
130	4700-0397-00		R-FXD CC 1000 OHM 5% 1/4W R70,78	ZZ	P	1	B	P	EA	1.00					
135	4700-0411-00		R-FXD CC 3900 OHM 5% 1/4W R71	ZZ	P	1	B	P	EA	2.00		16-MAR-79			
140	4700-0413-00		R-FXD CC 4700 OHM 5% 1/4W R72,92	ZZ	P	1	B	P	EA	6.00					
145	4700-0417-00		R-FXD CC 6800 OHM 5% 1/4W R9,16,18,20,96,97	ZZ	P	1	B	P	EA	1.00					
150	4700-0421-00		R-FXD CC 10K OHM 5% 1/4W R75	ZZ	P	1	B	P	EA	4.00					
155	4700-0428-00		R-FXD CC 20K OHM 5% 1/4W R76,83,86,88	ZZ	P	1	B	P	EA	6.00					
160	4700-0429-00		R-FXD CC 22K OHM 5% 1/4W R10,11,19,21,94,98	ZZ	P	1	B	P	EA	6.00					
165	4700-0442-00		R-FXD CC 75K OHM 5%1/4W R60-63,73,74	ZZ	P	1	B	P	EA	1.00					
170	4700-0445-00		R-FXD CC 100K OHM 5% 1/4W R82	ZZ	P	1	B	P	EA	3.00					
175	4700-0449-00		R-FXD CC 150K OHM 5% 1/4W R7,8,35	ZZ	P	1	B	P	EA	1.00					
180	4700-0452-00		R-FXD CC 200K OHM 5% 1/4W R54	ZZ	P	1	B	P	EA	2.00					
182	4700-0469-00		R-FXD CC 1.0M OHM 5% 1/4W R87,90	ZZ	P	1	B	P	EA	1.00		04-NOV-77			
190	4703-0154-00		R-FXD MF 392 OHM 1% 1/8W R103	ZZ	P	1	B	P	EA	1.00					
195	4703-0183-00		R-FXD MF 787 OHM 1% 1/8W R81	ZZ	P	1	B	P	EA	1.00					
197	4703-0189-00		R-FXD MF 909 OHM 1% 1/8W R40	ZZ	P	1	B	P	EA	1.00		28-AUG-79			
200	4703-0193-00		R-FXD MF 1000 OHM 1% 1/8W R85	ZZ	P	1	B	P	EA	2.00		28-AUG-79			
205	4703-0204-00		R-FXD MF 1300 OHM 1% 1/8W R53,102	ZZ	P	1	B	P	EA	2.00					
210	4703-0207-00		R-FXD MF 1400 OHM 1% 1/8W R26,27	ZZ	P	1	B	P	EA	2.00					
212	4703-0219-00		R-FXD MF 1870 OHM 1% 1/8W R77,89	ZZ	P	1	B	P	EA	1.00		07-MAR-78			
			R106												

PARENT PART: 8000-0002-89 PCB ASSY-ANALOG MEASUREMENT UM: EA PROD CODE: JB ECN: ASSEMBLY QTY: 1
ERC: D SRCE CODE:A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	ERC	PART DESCRIPTION / REMARKS	PRCD	STYPE	SPLN	ABC	PL	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
			R6,41,43,44,49												
215	4703-0224-00		R-FXD MF 2100 OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00					
			R69												
220	4703-0226-00		R-FXD MF 2210 OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00					
			R30												
222	4703-0236-00		R-FXD MF 2800 OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00		04-NOV-77			
			R15												
224	4703-0244-00		R-FXD MF 3400 OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00		04-NOV-77			
			R58												
225	4703-0246-00		R-FXD MF 3570 OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00					
			R67												
235	4703-0255-00		R-FXD MF 4420 OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00					
			R25												
245	4703-0258-00		R-FXD MF 4750 OHM 1% 1/8W	ZZ	P	1	B	P	EA	3.00					
			R37,38,8#												
250	4703-0260-00		R-FXD MF 4990 OHM 1% 1/8W	ZZ	P	1	B	P	EA	3.00					
			R52,66,6#												
255	4703-0265-00		R-FXC MF 5620 OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00					
			R59												
257	4703-0269-00		R-FXD MF 6190 OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00		07-MAR-78			
			R105												
265	4703-0280-00		R-FXD MF 8060 OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00					
			R79												
267	4703-0284-00		R-FXD MF 8870 OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00		04-NOV-77			
			R17												
270	4703-0289-00		R-FXD MF 10.0K OHM 1% 1/8W	ZZ	P	1	B	P	EA	18.00					
			R12,13,24,28,31,33,												
			34,36,46-48,50,51,56												
			91,100,101,104												
276	4703-0294-00		R-FXD MF 11.3K OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00		04-NOV-77			
			R57												
280	4703-0304-00		R-FXD MF 14.3K OHM 1% 1/8W	ZZ	P	1	B	P	EA	2.00					
			R29,32												
285	4703-0314-00		R-FXD MF 18.2K OHM 1% 1/8W	ZZ	P	1	B	P	EA	3.00					
			R42,45,55												
290	4703-0339-00		R-FXD MF 33.2K OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00					
			R80												
292	4703-0367-00		R-FXD MF 64.9K OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00		07-MAR-78			
			R95												
293	4703-0369-00		R-FXD MF 68.1K OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00		07-MAR-78			
			R99												
295	4703-0373-00		R-FXD MF 75.0K OHM 1% 1/8W	ZZ	P	1	B	P	EA	1.00					
			R39												
300	4703-0385-00		R-FXD MF 100K OHM 1% 1/8W	ZZ	P	1	B	P	EA	2.00					
			R64,65												
305	4750-0027-00		R-VAR 20 TURN 1K OHM	ZZ	P	1	B	P	EA	1.00					
			R1												
310	4750-0028-00		R-VAR 20 TURN 2K OHM	ZZ	P	1	B	P	EA	4.00					
			R2,5,23,93												
315	4750-0031-00		R-VAR 20 TURN 20K OHM	ZZ	P	1	B	P	EA	2.00					

EFFECTIVITY DATE: ALL

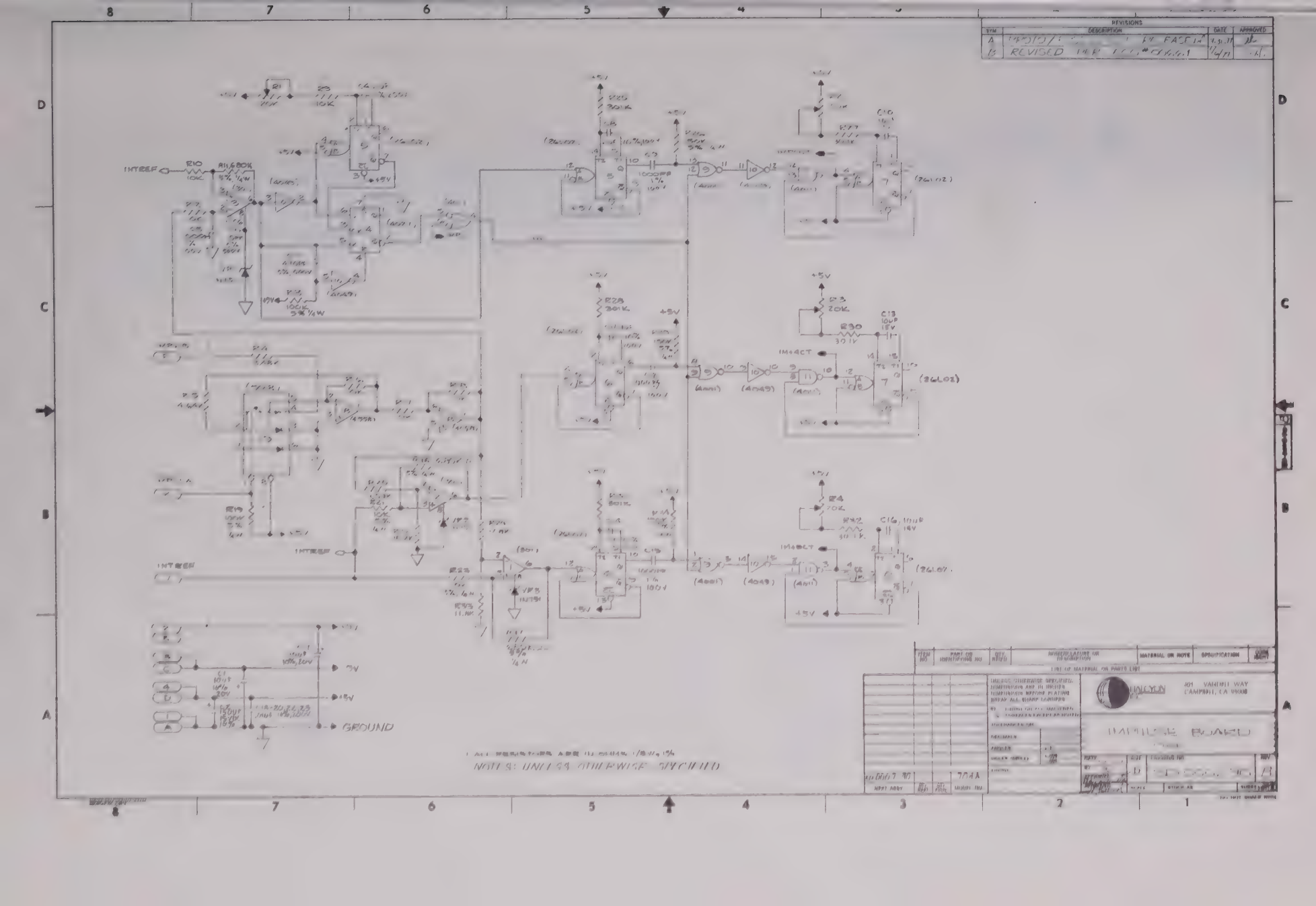
S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 6000-0002-H9 PCB ASSY-ANALOG MEASUREMENT UM: EA PROD CODE: JB ECN: ASSEMBLY QTY: 1
ENG: D ENGR CODE: A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	M C	PART DESCRIPTION / REMARKS	PR CD	C F	Y P	P H	A B	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
			Q5,4													
520	4800-3904-00		TSTR-NPN SI SM 2N3904 Q1-6,10	ZZ	P	1		B	P	EA	7.00					
525	4800-3906-00		TSTR-PNP SI SM 2N3906 Q9,12,14	ZZ	P	1		B	P	EA	3.00		28-AUG-79			
530	4800-4392-00		TSTR-N-CHNL J FET 2N4392 Q11	ZZ	P	1		B	P	EA	1.00					
535	4800-5019-00		TSTR-P CHANNEL SW FET Q7,8	ZZ	P	1		B	P	EA	2.00					
537	4800-5485-00		TSTR-N-CHNL J-FET 2N5485 Q13	ZZ	P	1		B	P	EA	1.00		04-NOV-77			
540	4802-0751-00		DIODE-ZENER 5.1V 1N751A VR1,3-7	ZZ	P	1		B	P	EA	6.00					
550	4802-4148-00		DIODE-SWITCHING 1N4148 CR3-9	ZZ	P	1		B	P	EA	7.00		28-AUG-79			

NOTES:

NO RECORDS ON DB1:[1,1]ZZBNOS.PMS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DATE
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REVISED PER
INTREF
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+15V
GROUND
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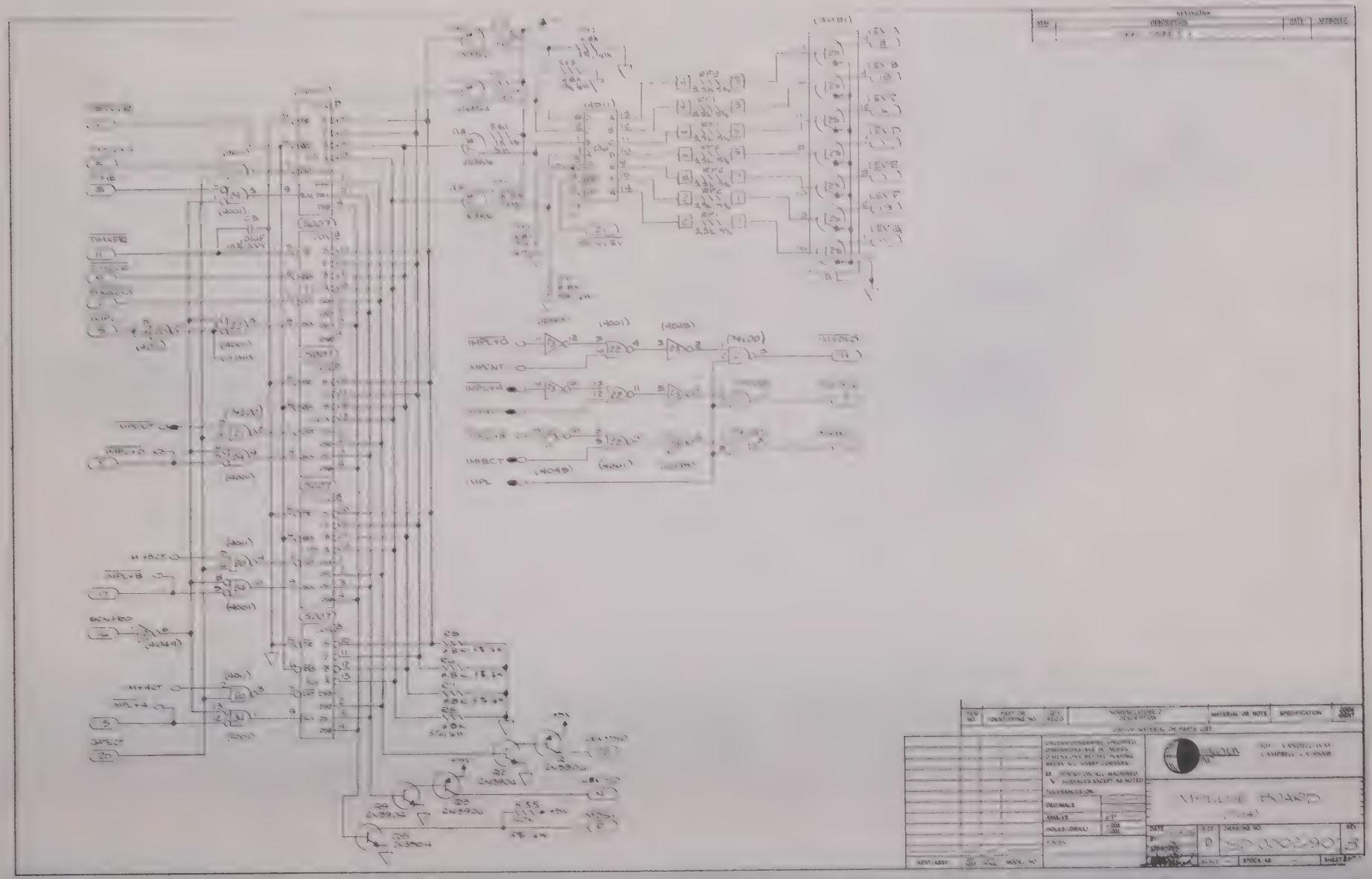
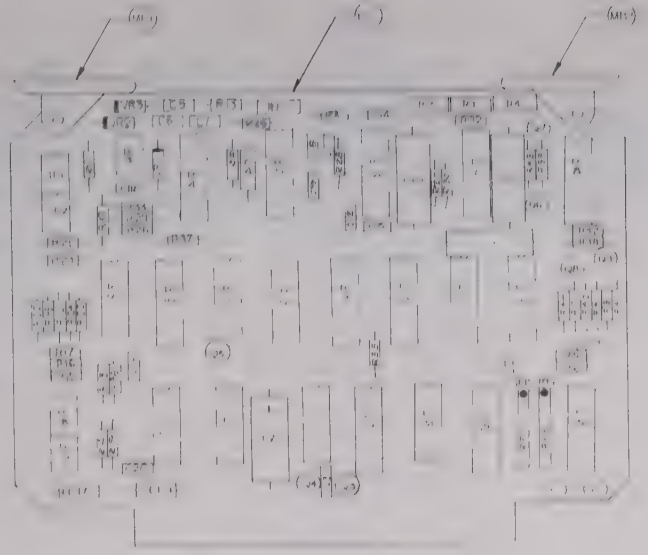
MATERIAL OR NOTE
SPECIFICATION
MOLEX
401 VARIAN WAY
CAMPBELL, CA 95008
BACKPLANE BOARD


IMPL+0
IMPL+4
IMBCT
IIPL
2N3904
2N3906

ZONE	REV	DESCRIPTION	DATE	APPROVED
	B	REVISED PER ECO #003908	4-19-99	



NOTES: UNLESS OTHERWISE SPECIFIED.

		PCB ASSY	
			ED-0002-90 B

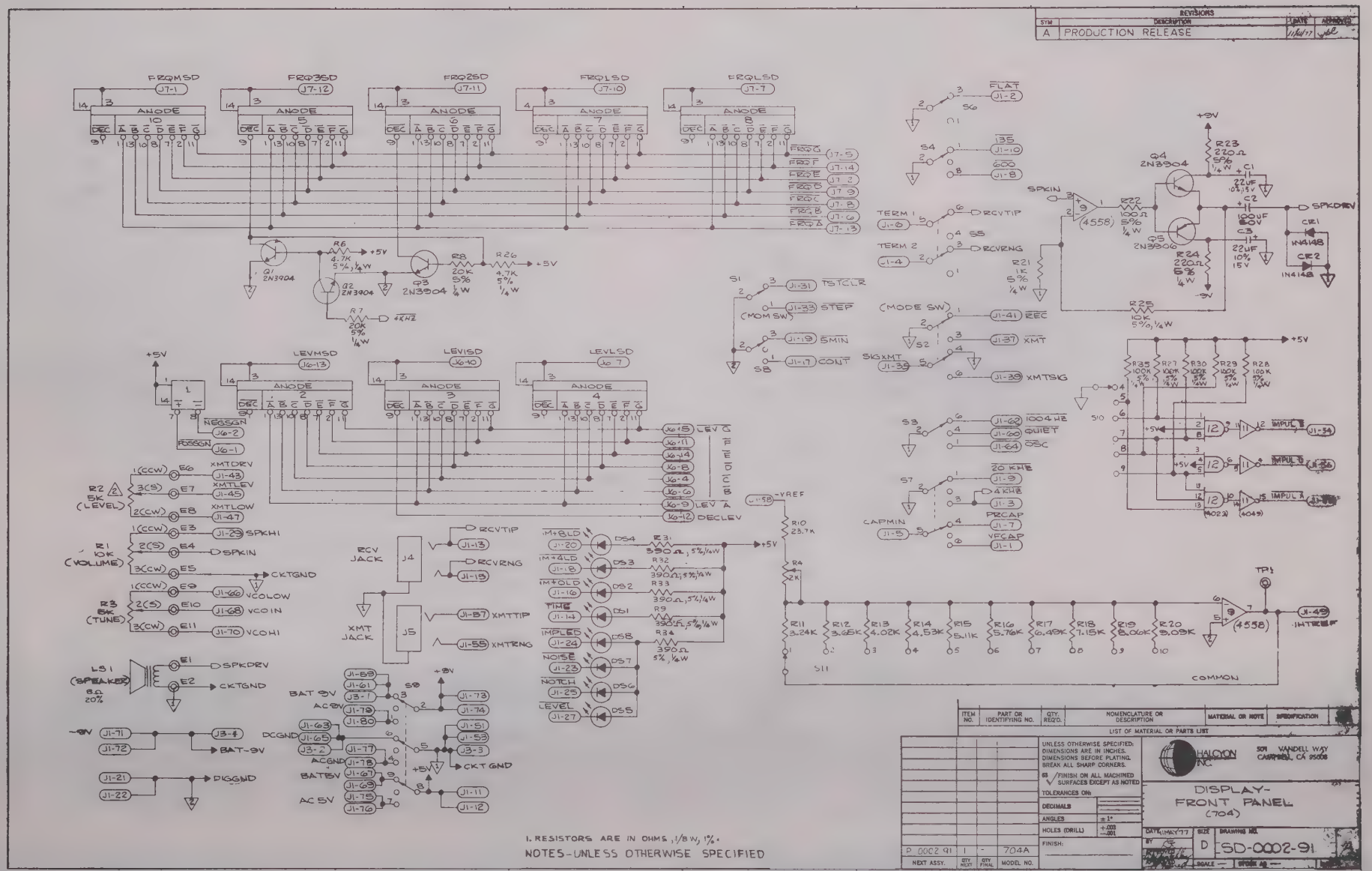
S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-90 PCB ASSY-IMPULSE BRD UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE: A DATE: 00-XXX-00

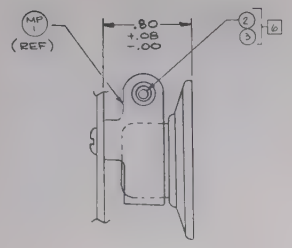
ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	1401-0011-00	EJECTOR-PCB MP1,2			P	1		C	P	EA	2.00					
010	1500-0054-00	C-FXD MICA 5PF 5% 500V C6			P	1		C	P	EA	1.00					
015	1500-0147-00	C-FXD MICA 470PF 5% 500V C7			P	1		C	P	EA	1.00					
020	1501-0062-00	C-FXD CER 10000PF 10% C3,18-20,22,23			P	1		C	P	EA	6.00					
025	1501-0074-00	C-FXD CER .1UF 10% 100V C8,11,14			P	1		C	P	EA	3.00					
030	1502-0025-00	C-FXD MET POLY 0.1UF 1% C4			P	1		B	P	EA	1.00					
033	1503-0135-00	C-FXD TA 150UF 10% 15WVDC C2			P	1		B	P	EA	1.00		04-Nov-77			
035	1503-0181-00	C-FXD TA 10UF 10% 20WVDC C1,17			P	1		C	P	EA	2.00					
040	1505-0007-00	C-FXD NON POLAR 10UF 15V C10,13,16			P	1		C	P	EA	3.00					
045	1505-0008-00	C-FXD MICA 1000PF 1% 100V C5,9,12,15			P	1		C	P	EA	4.00					
050	1700-0002-90	PCB-FAB IMPULSE BRD PC1			P	1			P	EA	1.00					
055	2101-0000-00	CON-8 PIN IC SCK SKT: 1-3,18,19			P	1		C	P	EA	5.00					
060	2101-0000-01	CON-14 PIN IC SCK LO PR SKT: 9,11,20-22,24			P	1			P	EA	6.00					
065	2101-0000-02	CON-16 PIN IC SCK LO PR SKT:4-8,10,12-16, 23,25,26			P	1			P	EA	14.00					
068	3130-0500-00	IC-74L00 LP QUAD 2 IN NAND IC21			P	1		C	P	EA	1.00		04-Nov-77			
070	3130-2602-01	IC-26L02 DUAL RESET S/S IC5,6,7,8			P	1		B	P	EA	4.00					
075	3130-4001-00	IC-4001 QUAD 2 IN NOR MOS IC9,22,24			P	1		C	P	EA	3.00					
080	3130-4011-00	IC-4011 QUAD 2 IN NAND MOS IC11,20			P	1		C	P	EA	2.00					
085	3130-4027-00	IC-4027 DUAL J-K FLOP MOS IC4			P	1		C	P	EA	1.00					
090	3130-4049-00	IC-4049 HEX INV BUFFR MOS IC10,23			P	1		C	P	EA	2.00					
095	3130-4511-00	IC-4511 BCD/7SEG DCOD MOS IC26			P	1		B	P	EA	1.00					
100	3130-5007-00	IC-5007 4 CTR W/SCN IN IC12,13,14,15,16			P	1		B	P	EA	5.00					
105	3131-0001-01	IC-301 LINEAR OP AMP MINI IC1,2,3			P	1		C	P	EA	3.00					
110	3131-0005-00	IC-1458 LINEAR OP AMP DUAL IC18			P	1		C	P	EA	1.00					
115	3132-0004-03	IC-5018E-CHNL ANALOG SW			P	1		B	P	EA	1.00					

PARENT PART: 8000-0002-90 PCB ASSY-IMPULSE BRD UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE: A DATE: 00-XXX-00

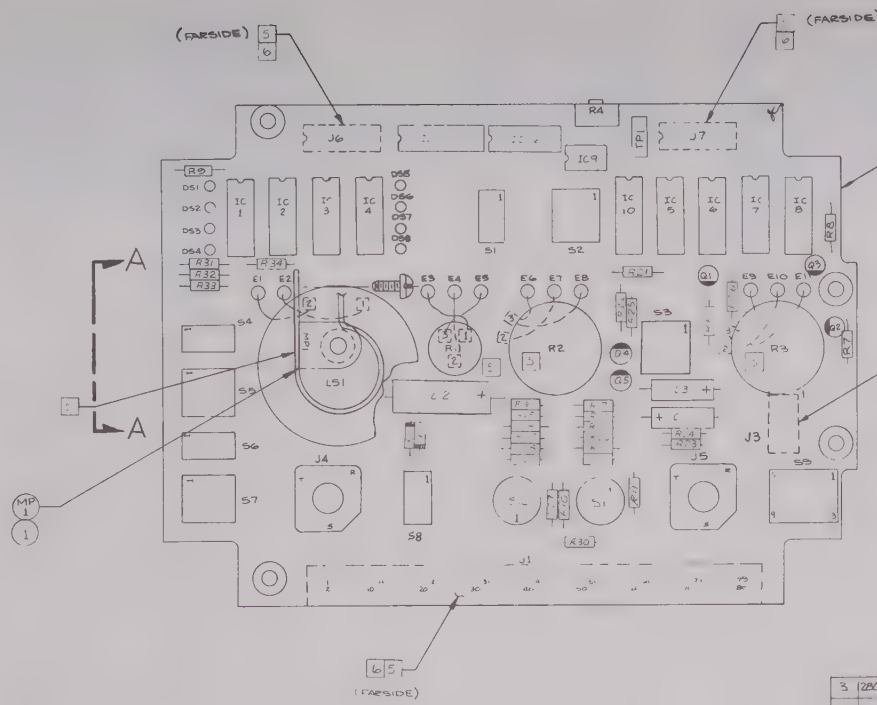
ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
		IC19														
120	3132-0010-00	IC-7 NPN TRANSISTOR ARRAY				P	1		P	EA	1.00					
		IC25														
125	4700-0397-00	R-FXD CC 1000 OHM 5% 1/4W				P	1	C	P	EA	4.00					
		R38-41														
130	4700-0413-00	R-FXD CC 4700 OHM 5% 1/4W				P	1	C	P	EA	1.00					
		R35														
133	4700-0417-00	R-FXD CC 6800 OHM 5% 1/4W				P	1	C	P	EA	8.00		04-Nov-77			
		R5-8,42-45														
135	4700-0421-00	R-FXD CC 10K OHM 5% 1/4W				P	1	C	P	EA	2.00					
		R21,23														
140	4700-0445-00	R-FXD CC 100K OHM 5% 1/4W				P	1	C	P	EA	2.00					
		R13,19														
145	4700-0449-00	R-FXD CC 150K OHM 5% 1/4W				P	1	C	P	EA	3.00					
		R26,29,34														
150	4700-0465-00	R-FXD CC 680K OHM 5% 1/4W				P	1	C	P	EA	3.00					
		R11,R36,R37														
155	4703-0245-00	R-FXD MF 3480 OHM 1% 1/8W				P	1	C	P	EA	1.00					
		R14														
160	4703-0257-00	R-FXD MF 4640 OHM 1% 1/8W				P	1	C	P	EA	1.00					
		R15														
165	4703-0287-00	R-FXD MF 9.53K OHM 1% 1/8W				P	1	C	P	EA	1.00					
		R20														
170	4703-0289-00	R-FXD MF 10.0K OHM 1% 1/8W				P	1	C	P	EA	5.00					
		R10,12,16,17,18														
177	4703-0296-00	R-FXD MF 11.8K OHM 1% 1/8W				P	1	C	P	EA	1.00		04-Nov-77			
		R33														
182	4703-0309-00	R-FXD MF 16.2K OHM 1% 1/8W				P	1	C	P	EA	1.00		04-Nov-77			
		R22														
184	4703-0313-00	R-FXD MF 17.8K OHM 1% 1/8W				P	1	C	P	EA	1.00		04-Nov-77			
		R24														
193	4703-0335-00	R-FXD MF 30.1K OHM 1% 1/8W				P	1	C	P	EA	3.00		04-Nov-77			
		R27,30,32														
195	4703-0389-00	R-FXD MF 110K OHM 1% 1/8W				P	1	C	P	EA	1.00					
		R9														
200	4703-0431-00	R-FXD MF 301K OHM 1% 1/8W				P	1	C	P	EA	3.00					
		R25,28,31														
205	4710-0017-43	R-PAK 8PIN 4 RES				P	1	*	P	EA	2.00		07-Mar-78			
		RP1&2														
210	4750-0011-00	R-VAR SNGL TURN 20K OHM				P	1	C	P	EA	4.00		07-Mar-78			
		R1-4														
215	4800-3904-00	TSTR-NPN SI SH 2N3904				P	1	C	P	EA	3.00					
		Q2,4,5														
220	4800-3906-00	TSTR-PNP SI SH 2N3906				P	1	C	P	EA	6.00					
		Q1,3,6-9														
225	4802-0751-00	DIODE-ZENER 5.1V 1N751A				P	1	C	P	EA	3.00					
		VR1,2,3														

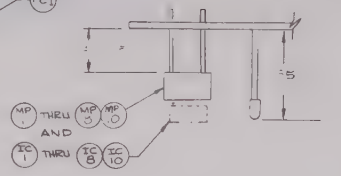

REVISIONS
SYM DESCRIPTION DATE APPROVED
A PRODUCTION RELEASE 1/24/77
FRQMSD J7-1
FRQ3SD J7-12
FRQ2SD J7-11
FRQ1SD J7-10
FRQLSD J7-7
ANODE 10
ANODE 5
ANODE 6
ANODE 7
ANODE 8
FREQ G J7-5
FREQ F J7-14
FREQ E J7-2
FREQ D J7-9
FREQ C J7-8
FREQ B J7-6
FREQ A J7-13
Q1 2N3904
Q2 2N3904
Q3 2N3904
R6 4.7K 5% 1/4W
R7 20K 5% 1/4W
R8 20K 5% 1/4W
R26 4.7K 5% 1/4W
+5V
4KHZ
FLAT J1-2
135 J1-10
600 J1-8
TERM 1 J1-6
TERM 2 J1-4
RCVTIP
RCVRNG
S1
TSTCLR J1-31
STEP J1-33
(MOM SW)
5MIN J1-19
CONT J1-17
(MODE SW)
REC J1-41
XMT J1-37
SIGXMT J1-38
XMTSIG J1-39
1004 HZ J1-62
QUIET J1-60
OSC J1-64
20 KHZ J1-9
4 KHZ J1-3
PRCAP J1-7
VFCAP J1-1
CAPMIN J1-5
Q4 2N3904
Q5 2N3906
R23 270Ω 5% 1/4W
R24 270Ω 5% 1/4W
R21 1K 5% 1/4W
R22 100Ω 5% 1/4W
R25 10K 5% 1/4W
C1 22UF 10% 15V
C2 100UF 6V
C3 22UF 10% 15V
SPKIN
SPKDRV
CR1 IN4148
CR2 IN4148
(4558)
-9V
LEVMSD J6-13
LEVISD J6-10
LEVLSD J6-7
ANODE 2
ANODE 3
ANODE 4
NEGSGN J6-2
POSSGN J6-1
J6-15 LEV G
J6-11 LEV F
J6-14 LEV E
J6-8 LEV D
J6-4 LEV C
J6-6 LEV B
J6-9 LEV A
J6-12 DECLEV
R35 100K 5% 1/4W
R27 100K 5% 1/4W
R30 100K 5% 1/4W
R29 100K 5% 1/4W
R28 100K 5% 1/4W
IMPUL J1-34
IMPUL J1-36
IMPUL J1-32
(4027)
(4049)
R2 5K (LEVEL)
R1 10K (VOLUME)
R3 5K (TUNE)
XMTDRV J1-43
XMTLEV J1-45
XMTLOW J1-47
SPKHI J1-29
SPKIN
CKTGND
VCOLOW J1-66
VCOIN J1-68
VCOHI J1-70
C1-58 -YREF
R10 23.7K
R4 2K
R11 3.24K
R12 3.65K
R13 4.02K
R14 4.53K
R15 5.11K
R16 5.76K
R17 6.49K
R18 7.15K
R19 8.06K
R20 9.09K
S11
COMMON
TP1
J1-49 INTREF
RCV JACK J4
XMT JACK J5
RCVTIP J1-13
RCVRNG J1-15
XMTTIP J1-57
XMTRNG J1-55
IM+8LD J1-20 DS4
IM+4LD J1-18 DS3
IM+2LD J1-16 DS2
TIME J1-14 DS1
IMPLED J1-24 DS8
NOISE J1-23 DS7
NOTCH J1-25 DS6
LEVEL J1-27 DS5
R32 390Ω 5% 1/4W
R33 390Ω 5% 1/4W
R9 390Ω 5% 1/4W
R34 390Ω 5% 1/4W
LS1 (SPEAKER) 8Ω 20%
SPKDRV
CKTGND
-9V J1-71 J1-72 J3-4
BAT-9V
DIGGND J1-21 J1-22
BAT 9V J1-69 J3-1
AC 9V J1-79 J1-80
DCGND J1-63 J1-65 J3-2
ACGND J1-77 J1-78
BAT 5V J1-67 J1-69
AC 5V J1-75 J1-76
S8
+9V J1-73 J1-74
J1-51 J1-53 J3-3
CKT GND
J1-11 J1-12
1. RESISTORS ARE IN OHMS, 1/8 W, 1%.
NOTES-UNLESS OTHERWISE SPECIFIED
ITEM NO. PART OR IDENTIFYING NO. QTY. REQ'D. NOMENCLATURE OR DESCRIPTION MATERIAL OR NOTE SPECIFICATION
LIST OF MATERIAL OR PARTS LIST
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.
63 √ FINISH ON ALL MACHINED √ SURFACES EXCEPT AS NOTED
TOLERANCES ON:
DECIMALS
ANGLES ±1°
HOLES (DRILL) +.003 -.001
FINISH:
HALCYON INC. 509 VANDELL WAY CAMPBELL, CA 95008
DISPLAY-FRONT PANEL (704)
DATE 1 MAY '77 SIZE D DRAWING NO. SD-0002-91
BY SCALE — SHEET NO. —
P 0002 91 1 - 704A
NEXT ASSY. QTY. REQ'D QTY. FINAL MODEL NO.

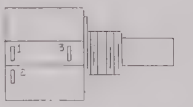
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE PER ECO #00673	1-17-77	
B	REVISED PER ECO #00673	1-17-77	
C	REVISED PER ECO #00749		
D	REVISED PER ECO #00793		
E	REVISED PER ECO #00824		

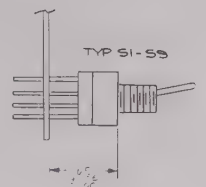


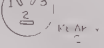
VIEW A - A
PARTIAL VIEW
SCALE: 2 TO 1











ITEM NO	PART OR IDENTIFYING NO	QTY REQ'D	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT
3	2800-0123-DC		SCREW 3-48 x			
2	2800-0132		WASHER FLAT SE #4			
1	2800-0129-00		SCREW PH 4-40 x .16 LG			

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DIMENSIONS BEFORE PLATING
BREAK ALL SHARP CORNERS
63 FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED
TOLERANCES ON:
DECIMALS .XX ±.02 .XXX ±.005
ANGLES ±1°
HOLES (DRILL) +.003 -.000
FINISH SEE NOTE

VOYAN
501 VANDELL WAY
CAMPBELL, CA 95008

PCB ASSEMBLY
DISPLAY/FRONT PANEL

DATE 5-16-77 | SIZE D | DRAWING NO ED-0002-91 | REV
APPROVED
APPROVED | SCALE 2/1 | STOK AS B000 | SHEET 1 OF 1

NEXT ASSY.	QTY NEXT	QTY FINAL	MODEL NO.
ED-0003-65	1	—	704

DO NOT SCALE DWG

- [6] INSTALL FROM FARSIDE
- [5] INSTALL AFTER WAVE SOLDERING.
4. ■ SQUARE PADS DENOTES CATHODE END OF DIODE, POS END OF CAP, EMITTER OF TRANSISTOR OR GATE OF FET.
3. FOR WIRING LIST SEE WL-0002-91.
2. FOR LIST OF MATERIALS SEE B000-0002-91.
1. FOR SCHEMATIC SEE SD-0002-91.

NOTES - UNLESS OTHERWISE SPECIFIED:

ED-0002-91

8 7 6 5 4 3 2 1

EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-91 PCB ASSY-DISP FR PANEL UM: EA PROD CODE: JB ECN: 998 ASSEMBLY QTY: 1
ERC: E SRCE CODE:A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	ERC	PART DESCRIPTION / REMARKS	PRCD	SCE	STYP	SRC	ABC	PL	UM	EXTENDED QTY PER	ECN CHG	START DATE	START S/N	CLOSE DATE	CLOSE S/N
005	1300-0001-00		SPEAKER-8 OHM 20% 1.5 IN LS1	ZZ	P	1		B	P	EA	1.00					
010	1503-0125-00		C-FXD TA 22UF 10% 15WVDC C1,3	ZZ	P	1		A	P	EA	2.00					
015	1504-0073-00		C-FXD AL ELECT 100UF 50V C2	ZZ	P	1		C	P	EA	1.00					
020	1700-0002-91		PCB-FAB-DISP FR PANEL PC1	JB	P	1		B	P	EA	1.00					
025	2100-0002-00		CON-TEST POINT PCB RED TP1	ZZ	P	1		C	P	EA	1.00					
030	2100-0130-00		CON-40 POS DIP SOLDER J1	ZZ	P	1		B	P	EA	1.00					
035	2100-0204-00		CON-TEL JACK 8 CONDOCKT J4,5	ZZ	P	1		B	P	EA	2.00					
040	2101-0000-00		CON-8 PIN IC SCK SKT. 9	ZZ	P	1		C	P	EA	1.00					
041	2101-0000-01		CON-14 PIN IC SCK LO PR J6,7, SKT 12	ZZ	P	1		C	P	EA	3.00		25-OCT-79			
045	2101-0000-02		CON-16 PIN IC SCK LO PR SKT 11	ZZ	P	1		C	P	EA	1.00		25-OCT-79			
050	2101-0008-00		CON-14 PIN IC SCK W/W POST SKT 1-8,10	ZZ	P	1		B	P	EA	9.00		25-OCT-79			
055	2101-0036-04		CONN-MALE PLUG RT ANGL J3	ZZ	P	1		C	P	EA	1.00					
060	2400-0002-00		LAMP-LED RED MINIATURE DS1-8	ZZ	P	1		B	P	EA	8.00					
065	2400-0056-00		DISPLAY-SEVEN SEG. GREEN IC5-8,10	ZZ	P	1		B	P	EA	5.00					
070	2400-0057-00		DISPLAY-SEVEN SEG RED RHD POINT IC2,3,4	ZZ	P	1		B	P	EA	3.00					
075	2400-0058-00		DISPLAY-PLUS-MINUS RED IC1	ZZ	P	1		B	P	EA	1.00					
080	2500-0002-47		CLAMP SPEAKER MP1	JA	P	1		B	P	EA	1.00					
082	3130-4023-00		IC-4023 TRIPL 3IN NAND IC12	ZZ	P	1		A	P	EA	1.00		11-NOV-77			
083	3130-4049-00		IC-4049 HEX INV BUFFR MOS IC11	ZZ	P	1		A	P	EA	1.00		11-NOV-77			
085	3131-0005-00		IC-1458 LINEAR OP AMP DUAL IC9	ZZ	P	1		A	P	EA	1.00		—			
090	4700-0373-00		R-FXD CC 100 OHM 5% 1/4W R22	ZZ	P	1		C	P	EA	1.00					
095	4700-0381-00		R-FXD CC 220 OHM 5% 1/4W R23,24	ZZ	P	1		C	P	EA	2.00					
100	4700-0387-00		R-FXD CC 390 OHM 5% 1/4W R9,31-34	ZZ	P	1		C	P	EA	5.00		11-NOV-77			
105	4700-0397-00		R-FXD CC 1000 OHM 5% 1/4W R21	ZZ	P	1		C	P	EA	1.00					

PARENT PART: 8000-0002-91 PCB ASSY-DISP FR PANEL UM: EA PROD CODE: JB ECN: 998 ASSEMBLY QTY: 1
ERC: E SMCE CODE: A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PART#	ER C	PART DESCRIPTION / REMARKS	PR CD	S C E	T Y P	S T R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
113	4700-0421-00		R-FXD CC 10K OHM 5% 1/4W R25	ZZ	P	1		C	P	EA	1.00		11-NOV-77			
115	4700-0428-00		R-FXD CC 20K OHM 5% 1/4W R7,8	ZZ	P	1		C	P	EA	2.00					
117	4700-0445-00		R-FXD CC 100K OHM 5% 1/4W R27-30,35	ZZ	P	1		C	P	EA	5.00		11-NOV-77			
130	4703-0242-00		R-FXD MF 3240 OHM 1% 1/8W R11	ZZ	P	1		C	P	EA	1.00					
135	4703-0247-00		R-FXD MF 3650 OHM 1% 1/8W R12	ZZ	P	1		C	P	EA	1.00					
140	4703-0251-00		R-FXD MF 4020 OHM 1% 1/8W R13	ZZ	P	1		C	P	EA	1.00					
145	4703-0256-00		R-FXD MF 4550 OHM 1% 1/8W R14	ZZ	P	1		C	P	EA	1.00					
150	4703-0261-00		R-FXD MF 5110 OHM 1% 1/8W R15	ZZ	P	1		C	P	EA	1.00					
155	4703-0266-00		R-FXD MF 5760 OHM 1% 1/8W R16	ZZ	P	1		C	P	EA	1.00					
160	4703-0271-00		R-FXD MF 6490 OHM 1% 1/8W R17	ZZ	P	1		C	P	EA	1.00					
165	4703-0275-00		R-FXD MF 7150 OHM 1% 1/8W R18	ZZ	P	1		C	P	EA	1.00					
170	4703-0280-00		R-FXD MF 8060 OHM 1% 1/8W R19	ZZ	P	1		C	P	EA	1.00					
175	4703-0285-00		R-FXD MF 9090 OHM 1% 1/8W R20	ZZ	P	1		C	P	EA	1.00					
185	4703-0525-00		R-FXD MF 23.7K OHM 1% 1/8W R10	ZZ	P	1		C	P	EA	1.00					
190	4750-0008-00		R-VAR SNGL TURN 2K OHM R4	ZZ	P	1		B	P	EA	1.00					
195	4751-0050-01		R-VAR 10K SINGLE TURN R1	ZZ	P	1		B	P	EA	1.00		02-DEC-77			
200	4751-0080-06		R-VAR TEN TURN 5K R2,3	JZ	P	1		B	P	EA	2.00		11-NOV-77			
210	4800-3904-00		TSTR-NPN SI SM 2N3904 Q1,2,3,4	ZZ	P	1		C	P	EA	4.00					
215	4800-3906-00		TSTR-PNP SI SM 2N3906 Q5	ZZ	P	1		C	P	EA	1.00					
220	4802-4148-00		DIODE-SWITCHING 1N4148 CR1,2	ZZ	P	1		B	P	EA	2.00					
230	5100-0204-02		SW-TOGGLE SPDT FLAT BAT S6	JB	P	1		B	P	EA	1.00					
235	5100-0204-03		SW-TOGGLE SPDT FLAT BAT S1	JB	P	1		B	P	EA	1.00					
240	5100-0206-03		SW-TOGGLE DPST FLAT BAT S3	JA	P	1		B	P	EA	1.00		05-APR-79			
245	5100-0206-04		SW-TOGGLE DPDT FLAT BAT S2,5	JA	P	1		B	P	EA	2.00					
250	5100-0207-01		SW-TOGGLE SPDT S4,8	JB	P	1		B	P	EA	2.00		11-NOV-77			

EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-91 PCB ASSY-DISP FR PANEL UM: EA PROD CODE: JB ECN: 998 ASSEMBLY QTY: 1
ERC: E SRCE CODE:A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CO	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	START S/N	CLOSE DATE	CLOSE S/N
005	1300-0001-00		SPEAKER-8 OHM 20% 1.5 IN LS1	ZZ	P	1		B	P	EA	1.00					
010	1503-0125-00		C-FXD TA 22UF 10% 15WVDC C1,3	ZZ	P	1		A	P	EA	2.00					
015	1504-0073-00		C-FXD AL ELECT 100UF 50V C2	ZZ	P	1		C	P	EA	1.00					
020	1700-0002-91		PCB-FAB-DISP FR PANEL PC1	JB	P	1		B	P	EA	1.00					
025	2100-0002-00		CON-TEST POINT PCB RED TP1	ZZ	P	1		C	P	EA	1.00					
030	2100-0130-00		CON-40 POS DIP SOLDER J1	ZZ	P	1		B	P	EA	1.00					
035	2100-0204-00		CON-TEL JACK 8 CONDOCKT J4,5	ZZ	P	1		B	P	EA	2.00					
040	2101-0000-00		CON-8 PIN IC SCK SKT. 9	ZZ	P	1		C	P	EA	1.00					
041	2101-0000-01		CON-14 PIN IC SCK LO PR J6,7, SKT 12	ZZ	P	1		C	P	EA	3.00		25-OCT-79			
045	2101-0000-02		CON-16 PIN IC SCK LO PR SKT 11	ZZ	P	1		C	P	EA	1.00		25-OCT-79			
050	2101-0008-00		CON-14 PIN IC SCK W/W POST SKT 1-8,10	ZZ	P	1		B	P	EA	9.00		25-OCT-79			
055	2101-0036-04		CONN-MALE PLUG RT ANGL J3	ZZ	P	1		C	P	EA	1.00					
060	2400-0002-00		LAMP-LED RED MINIATURE DS1-8	ZZ	P	1		B	P	EA	8.00					
065	2400-0056-00		DISPLAY-SEVEN SEG. GREEN IC5-8,10	ZZ	P	1		B	P	EA	5.00					
070	2400-0057-00		DISPLAY-SEVEN SEG RED RHD POINT IC2,3,4	ZZ	P	1		B	P	EA	3.00					
075	2400-0058-00		DISPLAY-PLUS-MINUS RED IC1	ZZ	P	1		B	P	EA	1.00					
080	2500-0002-47		CLAMP SPEAKER MP1	JA	P	1		B	P	EA	1.00					
082	3130-4023-00		IC-4023 TRIPL 3IN NAND IC12	ZZ	P	1		A	P	EA	1.00		11-NOV-77			
083	3130-4049-00		IC-4049 HEX INV BUFFR MOS IC11	ZZ	P	1		A	P	EA	1.00		11-NOV-77			
085	3131-0005-00		IC-1458 LINEAR OP AMP DUAL IC9	ZZ	P	1		A	P	EA	1.00					
090	4700-0373-00		R-FXD CC 100 OHM 5% 1/4W R22	ZZ	P	1		C	P	EA	1.00					
095	4700-0381-00		R-FXD CC 220 OHM 5% 1/4W R23,24	ZZ	P	1		C	P	EA	2.00					
100	4700-0387-00		R-FXD CC 390 OHM 5% 1/4W R9,31-34	ZZ	P	1		C	P	EA	5.00		11-NOV-77			
105	4700-0397-00		R-FXD CC 1000 OHM 5% 1/4W R21	ZZ	P	1		C	P	EA	1.00					
110	4700-0413-00		R-FXD CC 4700 OHM 5% 1/4W	ZZ	P	1		C	P	EA	2.00		11-NOV-77			

EFFECTIVITY DATE: ALL

PARENT PART: 8000-0002-91 PCB ASSY-DISP FR PANEL UM: EA PROD CODE: JB ECN: 998 ASSEMBLY QTY: 1
ERC: E SRCE CODE:A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	ERC	PART DESCRIPTION / REMARKS	PRCD	STYPE	SABC	PLCN	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
113	4700-0421-00		R-FXD CC 10K OHM 5% 1/4W R25	ZZ	P 1	C	P	EA	1.00		11-NOV-77			
115	4700-0428-00		R-FXD CC 20K OHM 5% 1/4W R7,8	ZZ	P 1	C	P	EA	2.00					
117	4700-0445-00		R-FXD CC 100K OHM 5% 1/4W R27-30,35	ZZ	P 1	C	P	EA	5.00		11-NOV-77			
130	4703-0242-00		R-FXD MF 3240 OHM 1% 1/8W R11	ZZ	P 1	C	P	EA	1.00					
135	4703-0247-00		R-FXD MF 3650 OHM 1% 1/8W R12	ZZ	P 1	C	P	EA	1.00					
140	4703-0251-00		R-FXD MF 4020 OHM 1% 1/8W R13	ZZ	P 1	C	P	EA	1.00					
145	4703-0256-00		R-FXD MF 4530 OHM 1% 1/8W R14	ZZ	P 1	C	P	EA	1.00					
150	4703-0261-00		R-FXD MF 5110 OHM 1% 1/8W R15	ZZ	P 1	C	P	EA	1.00					
155	4703-0266-00		R-FXD MF 5760 OHM 1% 1/8W R16	ZZ	P 1	C	P	EA	1.00					
160	4703-0271-00		R-FXD MF 6490 OHM 1% 1/8W R17	ZZ	P 1	C	P	EA	1.00					
165	4703-0275-00		R-FXD MF 7150 OHM 1% 1/8W R18	ZZ	P 1	C	P	EA	1.00					
170	4703-0280-00		R-FXD MF 8060 OHM 1% 1/8W R19	ZZ	P 1	C	P	EA	1.00					
175	4703-0285-00		R-FXD MF 9090 OHM 1% 1/8W R20	ZZ	P 1	C	P	EA	1.00					
185	4703-0325-00		R-FXD MF 23.7K OHM 1% 1/8W R10	ZZ	P 1	C	P	EA	1.00					
190	4750-0008-00		R-VAR SNGL TURN 2K OHM R4	ZZ	P 1	B	P	EA	1.00					
195	4751-0050-01		R-VAR 10K SINGLE TURN R1	ZZ	P 1	B	P	EA	1.00		02-DEC-77			
200	4751-0080-06		R-VAR TEN TURN 5K R2,3	JZ	P 1	B	P	EA	2.00		11-NOV-77			
210	4800-3904-00		TSTR-NPN SI SM 2N3904 Q1,2,3,4	ZZ	P 1	C	P	EA	4.00					
215	4800-3906-00		TSTR-PNP SI SM 2N3906 Q5	ZZ	P 1	C	P	EA	1.00					
220	4802-4148-00		DIODE-SWITCHING 1N4148 CR1,2	ZZ	P 1	B	P	EA	2.00					
230	5100-0204-02		SW-TOGGLE SPDT FLAT BAT S6	JB	P 1	B	P	EA	1.00					
235	5100-0204-03		SW-TOGGLE SPDT FLAT BAT S1	JB	P 1	B	P	EA	1.00					
240	5100-0206-03		SW-TOGGLE DP3T FLAT BAT S3	JA	P 1	B	P	EA	1.00		05-APR-79			
245	5100-0206-04		SW-TOGGLE DPDT FLAT BAT S2,5	JA	P 1	B	P	EA	2.00					
250	5100-0207-01		SW-TOGGLE SPDT S4,8	JB	P 1	B	P	EA	2.00		11-NOV-77			

EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-01 PCB ASSY-DISP FN PANEL UM: EA PROD CODE: JB ECN: 998 ASSEMBLY QTY: 1
INC: E SRCE CODE: A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CO	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
252	5100-0213-00		SWITCH-TOGGLE WIREWRAP S7	JB	P	1		R	P	EA	1.00		28-APR-78			
255	5100-0252-01		SW-TOGGLE 3PST FLAT MAT S9	JA	P	1		R	P	EA	1.00					
260	5100-0309-06		SWITCH-ROTARY MICHOMIN S10	JB	P	1		R	P	EA	1.00		11-NOV-77			
265	5100-0309-10		SWITCH-ROTARY MICHOMIN S11	JB	P	1		R	P	EA	1.00		11-NOV-77			

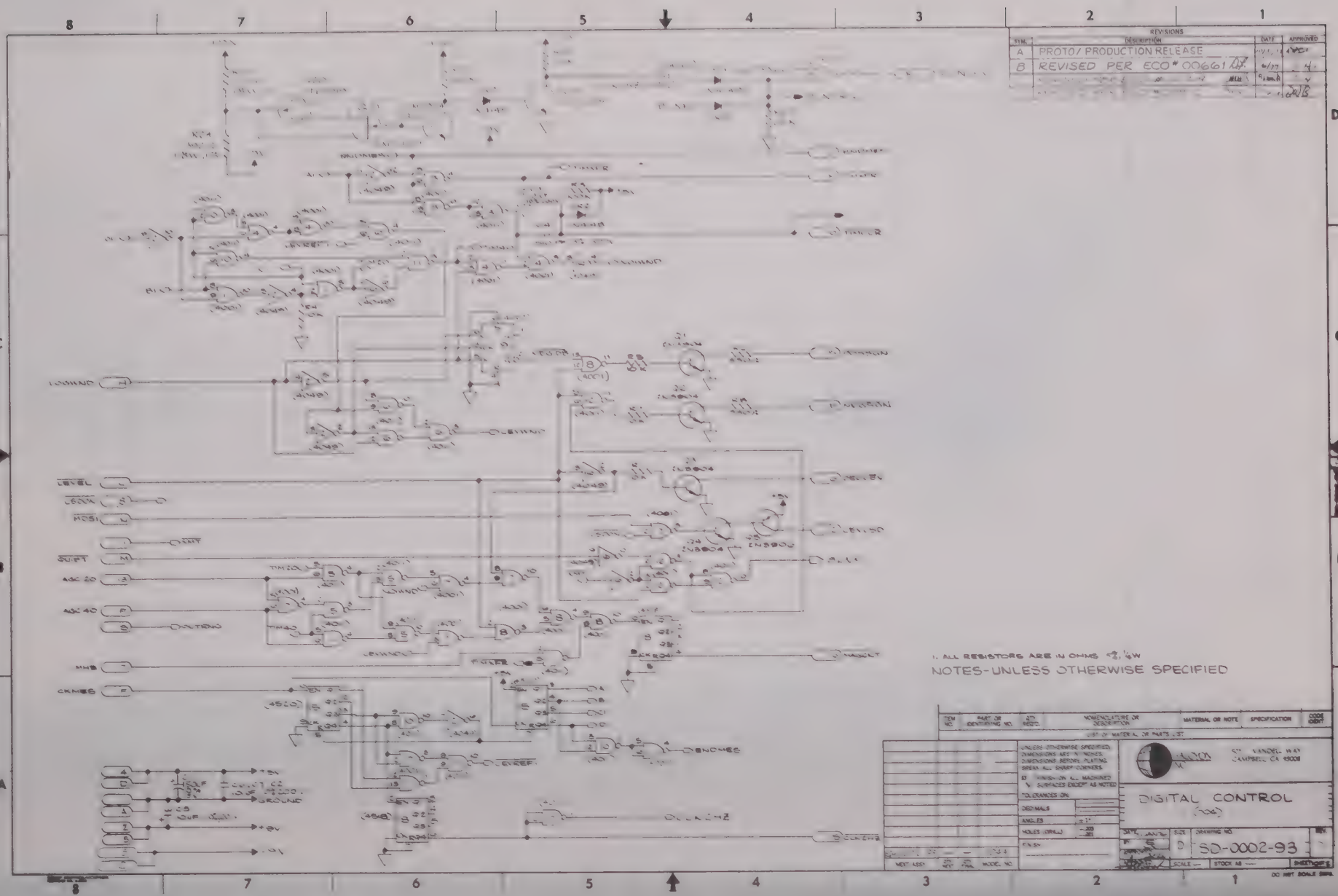
NOTES:

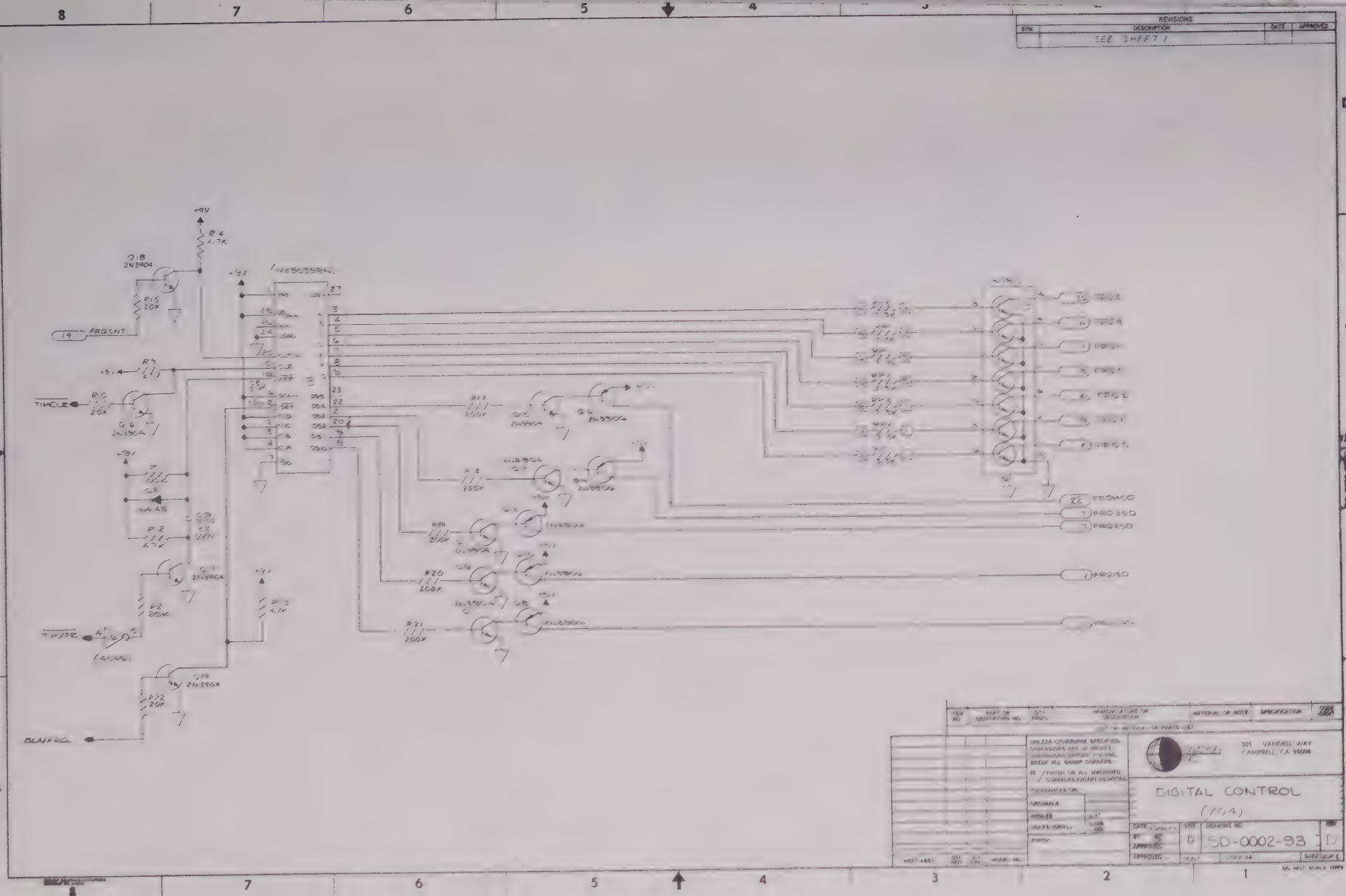
WIRING LIST WL 0002 – 91 REV A

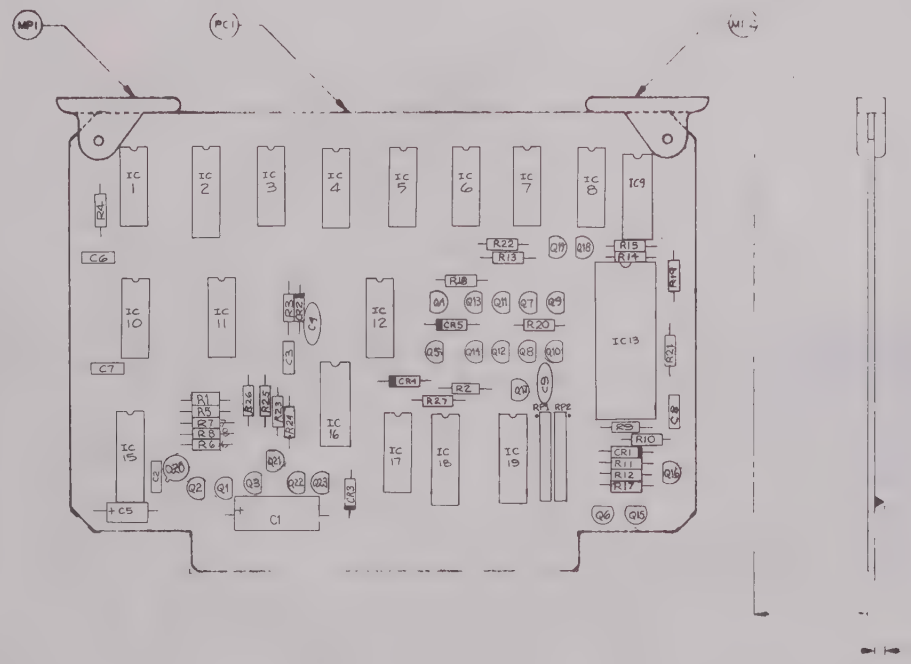
E 11/14/77 ECO Nº DCN 77/0122 SHEET 1 OF 1

WIRE		FROM		TO		FUNCTION
COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
Red	3"	E1		LS1	2	SPKDRV
Brn	3"	E2		LS1	1	CKTGND
Yel	3"	E3		R1	3	SPKHI
Grn	3"	E4		R1	2	SPKIN
Blu	3"	E5		R1	1	CKTGND
Pur	3"	E6		R2	3	XMTDRV
Blu	3"	E7		R2	2	XMTLEV
Yel	3"	E8		R2	1	XMTLOW
Brn	3"	E9		R3	1	VCOLOW
Org	3"	E10		R3	2	VCOIN
Red	3"	E11		R3	3	VCOHI

004-48


REVISIONS
SYM. DESCRIPTION DATE APPROVED
A PROTO/ PRODUCTION RELEASE
B REVISED PER ECO # 00661
NOTES-UNLESS OTHERWISE SPECIFIED
1. ALL RESISTORS ARE IN OHMS ±2, ¼W
DIGITAL CONTROL
SD-0002-93
5TH VANDEL WAY
CAMPBELL CA 95008
DO NOT SCALE DWG.


REVISIONS
SYM
DESCRIPTION
DATE
APPROVED
SEE SHEET 1
+9V
R4 4.7K
Q18 2N3904
P15 20K
FRQ INT
TIMCLE
Q6 2N3904
P3
P2 47K
Q1 2N3904
R2 20K
TWISE
Q19 2N3904
R22 20K
BLNKRG
R17 200K
Q4 2N3904
R8 200K
R20 200K
R21 200K
FR/MSD
FRQ3SD
FRQ2SD
FR/1SD
DIGITAL CONTROL
(10A)
DRAWING NO.
SD-0002-93
SIZE
D
REV
D



CAP, EMITTER OF TRANSISTOR OR

2. FOR LIST OF MATERIALS SEE 8000-

1. FOR SCHEMATIC SEE SD-

NOTES- UNLESS OTHERWISE SPECIFIED

DWG NO ED- | SH 1 | REV

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED

PARTS LIST

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
XX
XXX

CONTRACT NO

APPROVALS DATE

DRAWN

CHECKED

ISSUED

MATERIAL

FINISH SEE NOTES

NEXT ASSY USED ON

APPLICATION

DO NOT SCALE DRAWING

P.C.B. ASSEMBLY

SIZE D | FSCM NO | DWG NO ED- | REV

SCALE 2:1 | STOCK AS-8000 | SHEET 1 OF 1

EFFECTIVITY DATE: ALL

SINGLE LEVEL BILLS OF MATERIAL

PARENT PART: 8000-0002-93 PCB ASSY-DIGITAL CONT
FRC: C SRCE CODE:A TYPE: 1 UM: EA PROD CODE: FCN: ASSEMBLY QTY: 1
ARC: Y PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	FRC	PART DESCRIPTION / REMARKS	PRC	STY	STP	SRC	APN	UM	EXTENDED QTY PER	FCN CHG	START DATE	START S/N	CLOSE DATE	CLOSE S/N
005	1401-0011-00		EJECTOR-PCB MP1,2		P	1	C	P	EA	2.00					
007	1500-0076-00		C-FXD MICA 91PF 5% 500V C9		P	1	C	P	EA	1.00		04-NOV-77			
010	1500-0149-00		C-FXD MICA 510 PF 5% 500V C4		P	1	C	P	EA	1.00		23-FEB-79			
020	1501-0062-00		C-FXD CER 10000PF 10% C2,3,6-8		P	1	C	P	EA	5.00		23-FEB-79			
023	1503-0135-00		C-FXD TA 150UF 10% 15WVDC C1		P	1	R	P	EA	1.00		04-NOV-77			
025	1503-0181-00	1	C-FXD TA 10UF 10% 20WVDC C5		P	1	C	P	EA	1.00					
030	1700-0002-93		PCB-FAB-DIGITAL CONTROL PC1		P	1		P	EA	1.00					
035	2101-0000-01		CON-14 PIN IC SCK LO PR SKT 1,3-8,10-12,17		P	1		P	EA	11.00					
040	2101-0000-02		CON-16 PIN IC SCK LO PR SKT 2,9,15,16,18,19		P	1		P	EA	6.00					
045	2101-0000-07		CON-28 PIN IC SKT LO PROF SKT 13		P	1		P	EA	1.00					
050	3130-4001-00		IC-4001 QUAD 2 IN NOR MOS IC1,4,7,8,17		P	1	C	P	EA	5.00					
055	3130-4011-00		IC-4011 QUAD 2 IN NAND MOS IC3,5,6,10,11,12		P	1	C	P	EA	6.00					
060	3130-4027-00		IC-4027 DUAL J-K FLOP MOS IC9		P	1	C	P	EA	1.00					
065	3130-4049-00		IC-4049 HEX INV BUFFR MOS IC2,16		P	1	C	P	EA	2.00					
070	3130-4518-00		IC-4518 DUAL BCD CNTR MOS IC18		P	1	R	P	EA	1.00					
075	3130-4520-00		IC-4520 DUAL BIN CNTR MOS IC15		P	1	R	P	EA	1.00					
080	3130-5398-00		IC-50398 6 DEC CNT/DISP IC13		P	1		P	EA	1.00					
085	3132-0010-00		IC-7 NPN TRANSISTOR ARRAY IC19		P	1		P	EA	1.00					
090	4700-0385-00		R-FXD CC 330 OHM 5% 1/4W R6,8		P	1	C	P	EA	2.00					
095	4700-0413-00		R-FXD CC 4700 OHM 5% 1/4W R9,12-14		P	1	C	P	EA	4.00					
100	4700-0421-00		R-FXD CC 10K OHM 5% 1/4W R1,4,5,7		P	1	C	P	EA	4.00					
105	4700-0428-00		R-FXD CC 20K OHM 5% 1/4W R2,10,15,22,25-27		P	1	C	P	EA	7.00		23-FEB-79			
110	4700-0445-00		R-FXD CC 100K OHM 5% 1/4W R3,11		P	1	C	P	EA	2.00					
112	4700-0452-00		R-FXD CC 200K OHM 5% 1/4W R17-21		P	1	C	P	EA	5.00		04-NOV-77			
113	4703-0154-00		R-FXD MF 392 OHM 1% 1/8W R24		P	1	C	P	EA	1.00		23-FEB-79			

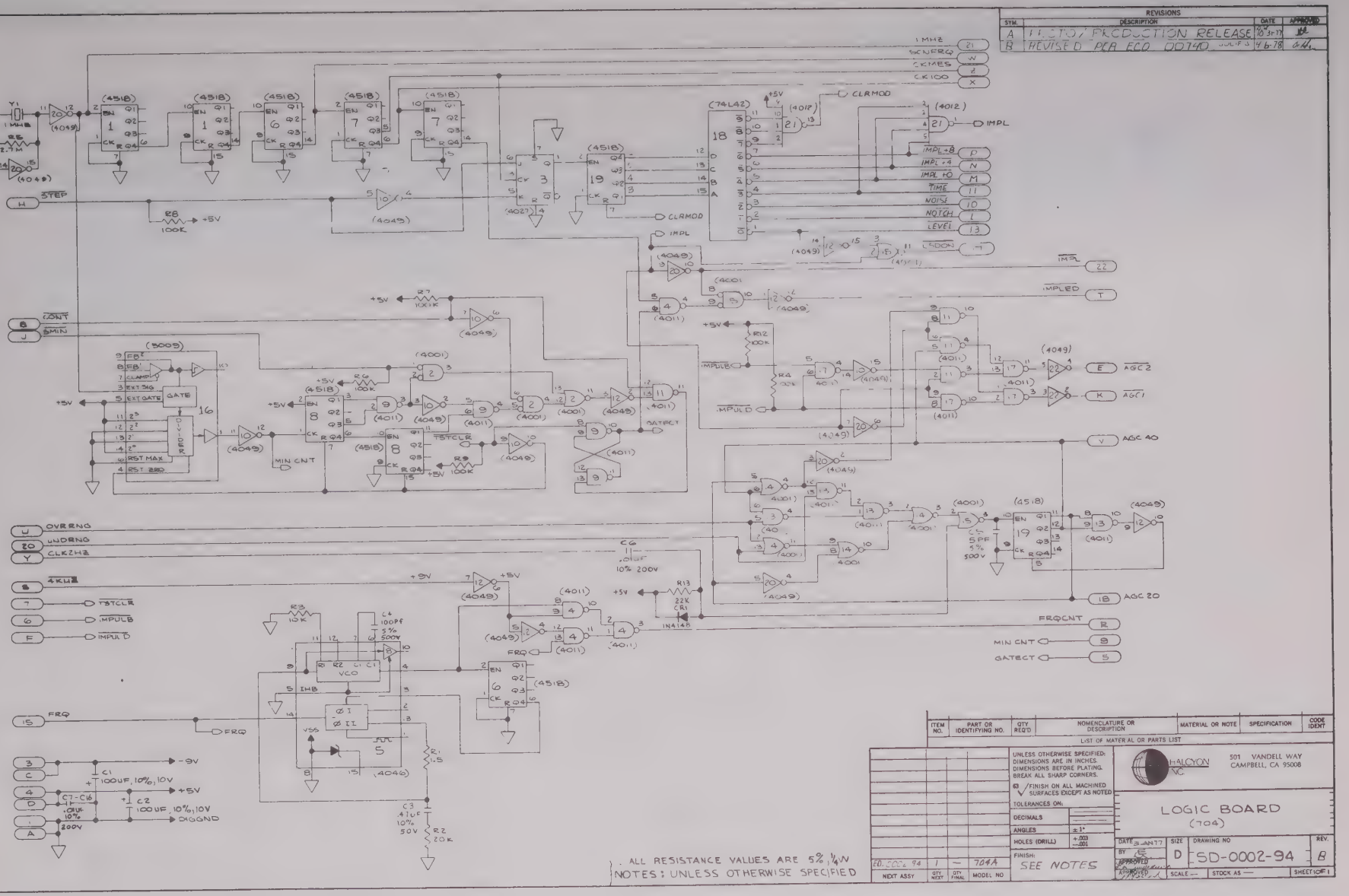
EFFECTIVITY DATE: ALL SINGLE LEVEL BILLS OF MATERIAL

PARENT PART: 8000-0002-93 PCB ASSY-DIGITAL CONT UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
FRC: C SRCE CODE:A TYPE: 1 ABC: Y PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	F R C	PART DESCRIPTION / REMARKS	PR CD	S C E	T Y P	S T R	A P R C	P I N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
114	4703-0291-00		R-FXD MF 10.5K OHM 1% 1/8W R23		P	1		C	P	EA	1.00		23-FEB-79			
115	4710-0017-43		R-PAK 8PIN 4 RES RP1,2		P	1		*	P	EA	4.00		30-MAR-78			
120	4800-3904-00		TSTR-NPN ST SM 2N3904 Q1-4,7,9,11,13, 15-19,22,23		P	1		C	P	EA	15.00		23-FEB-79			
125	4800-3906-00		TSTR-PNP ST SM 2N3906 Q5,6,8,10,12,14		P	1		C	P	EA	6.00					
126	4800-5019-00		TSTR-P CHANNEL SW FET Q20		P	1			P	EA	1.00		23-FEB-79			
128	4800-5459-00		TSTR-N-CHNL J-FET 2N5459 Q21		P	1		C	P	EA	1.00		23-FEB-79			
130	4802-4148-00		DIODE-SWITCHING 1N4148 CR1-5		P	1		C	P	EA	5.00		23-FEB-79			

NOTES:

NO RECORDS ON DP1:[1,11]ZZBNOS.FMS


REVISIONS
SYM. DESCRIPTION DATE APPROVED
A INITIAL PRODUCTION RELEASE 10-31-77
B REVISED PER ECO 00740 JULY 5 4-6-78
1 MHz
SCNFRQ
CKTMES
CK100
CLRMOD
IMPL
STEP
CONT
SMIN
OVRENG
UNDRNG
CLKZHZ
4KHz
TSTCLR
IMPULB
IMPULD
FRQ
MIN CNT
GATECT
AGC2
AGC1
AGC 40
AGC 20
FRQCNT
VCO
-9V
+5V
DIGGND
ALL RESISTANCE VALUES ARE 5% 1/4W
NOTES: UNLESS OTHERWISE SPECIFIED
HALCYON INC
501 VANDELL WAY
CAMPBELL, CA 95008
LOGIC BOARD
(704)
SD-0002-94
REV. B
SEE NOTES
704A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
	PRODUCTION RELEASE	11-17	
	REVISED PER ECO # 006617	1/6/82	
	REVISED PER ECO #006795	3/4/82	

4. POSITION TIE BARS AS SHOWN ON THE SLOT A TO THE LEFT.
3. ■ SQUARE PADS DENOTES CATHODE END OF DIODE, POS END OF CAP, EMITTER OF TRANSISTOR OR GATE OF FET.
2. FOR LIST OF MATERIALS SEE 8000-
1. FOR SCHEMATIC SEE SD-

NOTES - UNLESS OTHERWISE SPECIFIED:

ITEM NO	PART OR IDENTIFYING NO	QTY. REQ'D	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DIMENSIONS BEFORE PLATING
BREAK ALL SHARP CORNERS
63 √ FINISH ON ALL MACHINED √ SURFACES EXCEPT AS NOTED
TOLERANCES ON
DECIMALS
ANGLES ± 1°
HOLES (DRILL) +.003 −.001
FINISH

NEXT ASSY | QTY. NEXT | QTY. FINAL | MODEL NO

DALCOTON
501 - SANDHILL WAY
CAMPBELL CA 95008

DATE
BY
APPROVED
APPROVED

SIZE D | DRAWING NO ED- | REV

SCALE 2:1 | STOCK AS 8000 | SHEET 1OF1

SINGLE LEVEL BILLS OF MATERIAL

PARENT PART: 8000-0002-94 PCB-ASSY-LOGIC BOARD

UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE: A DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	1401-0011-00	EJECTOR-PCB MP1,2				P	1		C	P EA	2.00					
010	1500-0054-00	C-FXD MICA 5PF 5% 500V C5				P	1		C	P EA	1.00					
015	1500-0077-00	C-FXD MICA 100PF 5% 500V C4				P	1		C	P EA	1.00					
020	1501-0062-00	C-FXD CER 10000PF 10% C6-16				P	1		C	P EA	11.00					
025	1501-0082-00	C-FXD CER .47UF 10% 50V C3				P	1		B	P EA	1.00					
030	1503-0084-00	C-FXD TA 100UF 10% 10#VDC C1,2				P	1		B	P EA	2.00					
035	1700-0002-94	PCB-LOGIC BOARD PC1				P	1			P EA	1.00					
040	2101-0000-01	CON-14 PIN IC SCK LO PR SKT. 2,4,9,11,13-15, 17,21				P	1			P EA	9.00					
045	2101-0000-02	CON-16 PIN IC SCK LO PR SKT. 1,3,5-8,10,12, 16,18-20,22				P	1			P EA	13.00					
050	2300-0001-00	CRYSTAL-1.0 MHZ .005% Y1				P	1		B	P EA	1.00					
055	3130-0542-00	IC-74L42 LP BCD/DEC DECOR IC 18				P	1		B	P EA	1.00					
060	3130-4001-00	IC-4001 QUAD 2 IN NOR MOS IC2,14,15				P	1		C	P EA	3.00					
065	3130-4011-00	IC-4011 QUAD 2 IN NAND MOS IC4,9,11,13,17				P	1		C	P EA	5.00					
066	3130-4012-00	IC-4012 DUAL 4 IN NAND IC21				P	1			P EA	1.00		04-NOV-77			
070	3130-4027-00	IC-4027 DUAL J-K FLOP MOS IC3				P	1		C	P EA	1.00					
075	3130-4046-00	IC-4046 PHASE LOCK LP MOS IC5				P	1		B	P EA	1.00					
080	3130-4049-00	IC-4049 HEX INV BUFFR MOS IC10,12,20,22				P	1		C	P EA	4.00					
085	3130-4518-00	IC-4518 DUAL BCD CNTR MOS IC1,6-8,19				P	1		B	P EA	5.00					
090	3130-5009-00	IC-5009 CNTR TIME BASE IC 16				P	1		A	P EA	1.00					
095	4700-0421-00	R-FXD CC 10K OHM 5% 1/4W R3				P	1		C	P EA	1.00					
100	4700-0428-00	R-FXD CC 20K OHM 5% 1/4W R2				P	1		C	P EA	1.00					
105	4700-0429-00	R-FXD CC 22K OHM 5% 1/4W R13				P	1		C	P EA	1.00					
110	4700-0445-00	R-FXD CC 100K OHM 5% 1/4W R4,6-9,12				P	1		C	P EA	6.00					
115	4700-0473-00	R-FXD CC 1.5M OHM 5% 1/4W R1				P	1		C	P EA	1.00					

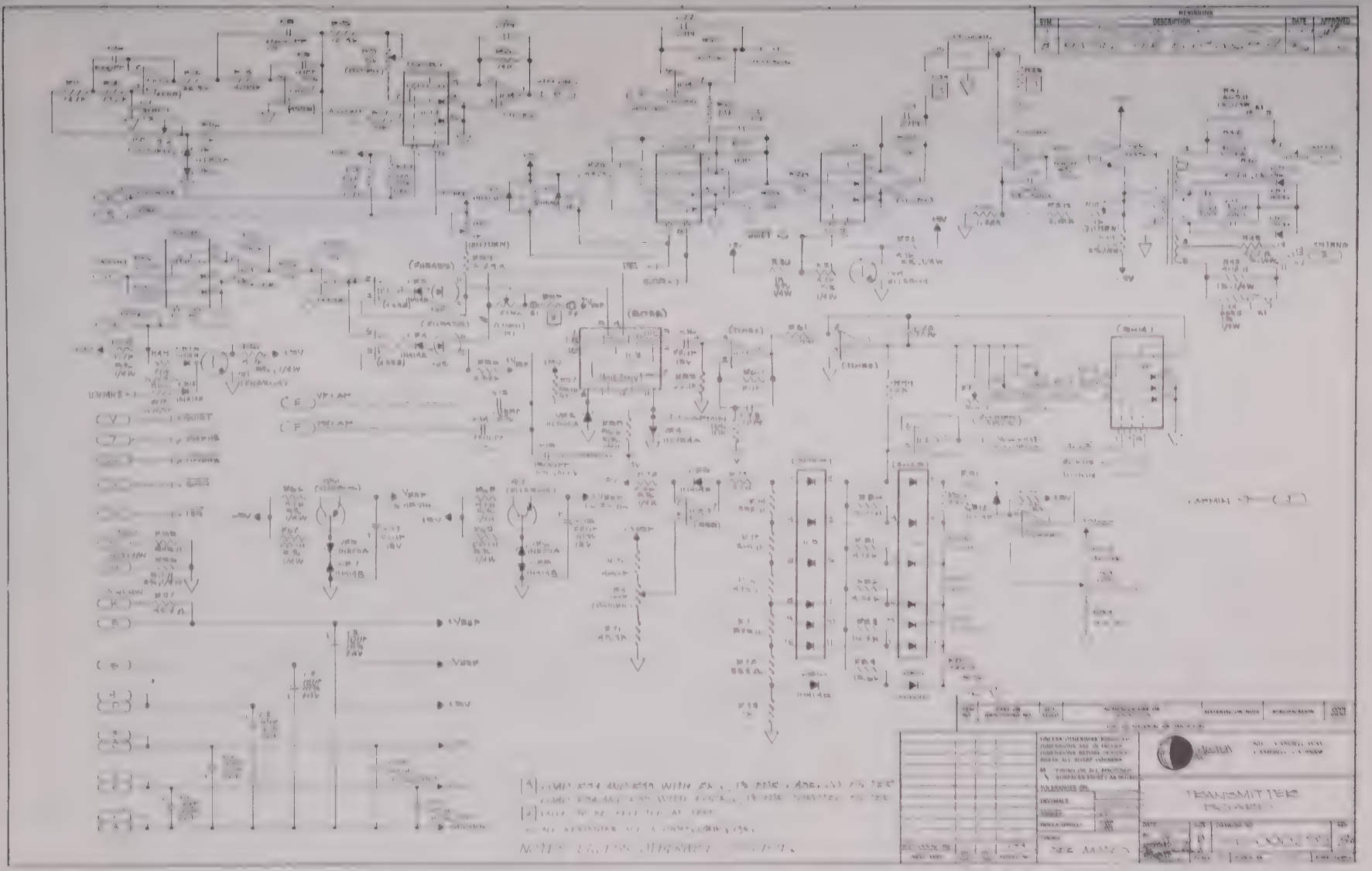
S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-94 PCB-ASSY-LOGIC BOARD UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE: A DATE: 00-XXX-00

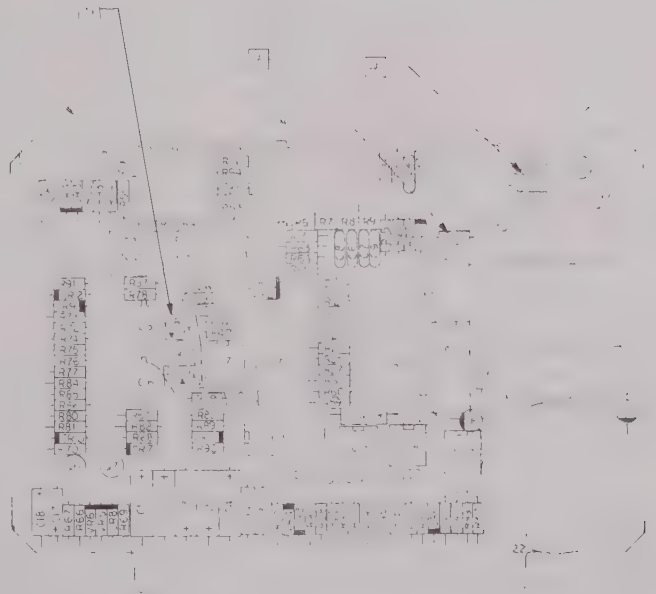
ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	C E	Y P	S T R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
120	4700-0479-00	R-FXD CC 2.7M OHM 5% 1/4W R5				P	1		C	P	EA	1.00				
125	4802-414M-00	DIODE-SWITCHING 1N4148 CR1				P	1		C	P	EA	1.00				

NOTES:

NO RECORDS ON DP1:(1,11)MABM08.FMS



B REVISED PER ECO#00677 L.N 2/7/78



5 LOAD R47, R100, CR13, & CR14 VERTICALLY
4 LOAD R34 & R35 WITH 2K, 1% FOR LASELCO FILTER.
LOAD R34 & R35 WITH 4.02K, 1% FOR TOROTEL FILTER.

0002-95.

704

TRANSMITTER BD-704

3/21/78

4/12/78

TD-0002-95 B

SINGLE LEVEL BILLS OF MATERIAL

PARENT PART: 8000-0002-95 PCB ASSY-TRANSMIT BRD

UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE: A DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	1401-0011-00	EJECTOR-PCB MP1,2				P	1	C	P	EA	2.00					
010	1500-0055-00	C-FXD MICA 10PF 5% 500V C9				P	1	C	P	EA	1.00					
012	1500-0056-00	C-FXD MICA 12PF 5% 500V C25				P	1	C	P	EA	1.00		11-NOV-77			
013	1500-0062-00	C-FXD MICA 27PF 5% 500V C21-24				P	1	C	P	EA	4.00		11-NOV-77			
015	1500-0071-00	C-FXD MICA 56PF 5% 500V C10				P	1	C	P	EA	1.00					
017	1500-0074-00	C-FXD MICA 75PF 5% 500V C26				P	1	C	P	EA	1.00		11-NOV-77			
025	1500-0201-00	C-FXD MICA 1500PF 5% 500V C15				P	1	C	P	EA	1.00					
032	1500-5202-00	C-FXD MICA 1500PF 1% 30 C7				P	1		P	EA	1.00		11-NOV-77			
033	1500-5209-00	C-FXD MICA 3000PF 1% 300V C6,8				P	1	C	P	EA	2.00		11-NOV-77			
034	1500-5219-00	C-FXD MICA 7500PF 1% 300V C14				P	1	B	P	EA	1.00		11-NOV-77			
035	1501-0062-00	C-FXD CER 10000PF 10% C19,20				P	1	C	P	EA	2.00					
043	1502-0049-00	C-FXD MET POLY .05UF 1% C13				P	1	B	P	EA	1.00		11-NOV-77			
050	1503-0125-00	C-FXD TA 22UF 10% 15WVDC C16-18				P	1	C	P	EA	3.00					
055	1503-0181-00	C-FXD TA 10UF 10% 20WVDC C1-5				P	1	C	P	EA	5.00					
060	1504-0108-00	C-FXD AL ELECT 22UF 200 C11,12				P	1		P	EA	2.00					
065	1700-0002-95	PCB-FAB-TRANSMIT BRD PC1				P	1		P	EA	1.00					
070	2101-0000-00	CON-8 PIN IC SCK J1-4,7,10-16,17				P	1	C	P	EA	13.00					
075	2101-0000-01	CON-14 PIN IC SCK LO PR J8,9				P	1		P	EA	2.00					
078	2700-0101-00	FILTER-LPF 110 KHZ FL1				P	1	*	P	EA	1.00		11-NOV-77			
080	3131-0005-00	IC-1458 LINEAR OP AMP DUAL IC1,2,4,10				P	1	C	P	EA	4.00					
085	3131-0008-00	IC-TL082 JFET OP AMP IC3,12,14,15,17				P	1	B	P	EA	5.00		11-NOV-77			
090	3132-0002-00	IC-3039 DIODE ARRAY IC5,6				P	1	B	P	EA	2.00					
095	3132-0003-01	IC-8038 VCO 100PPM/DEG C IC9				P	1	B	P	EA	1.00					
100	3132-0004-02	IC-5014P-CHNL ANALOG SW IC8				P	1	B	P	EA	1.00					
105	3132-0004-03	IC-5018P-CHNL ANALOG SW IC7,11,13,16				P	1	B	P	EA	4.00					

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-95 PCB ASSY-TRANSMIT BRD UM: EA ERC: B PROD CODE: SRCE CODE: A ECN: DATE: 00-XXX-00 ASSEMBLY QTY: 1

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
110	4500-0001-00	RELAY-REED 2 FORM A 5VDC K1				P	1	B	P	EA	1.00		11-NOV-77			
112	4500-0013-00	RELAX Z FORMC 5V COIL K2				P	1	*	P	EA	1.00		11-NOV-77			
115	4700-0342-00	R-FXD CC 5.1 OHMS 5% 1/4W R96				P	1		P	EA	1.00					
120	4700-0365-00	R-FXD CC 47 OHM 5% 1/4W R66,68				P	1	C	P	EA	2.00					
125	4700-0367-00	R-FXD CC 56 OHM 5% 1/4W R58				P	1	C	P	EA	1.00					
130	4700-0373-00	R-FXD CC 100 OHM 5% 1/4W R37				P	1	C	P	EA	1.00					
140	4700-0381-00	R-FXD CC 220 OHM 5% 1/4W R39,67,69				P	1	C	P	EA	3.00					
145	4700-0387-00	R-FXD CC 390 OHM 5% 1/4W R57				P	1	C	P	EA	1.00					
150	4700-0397-00	R-FXD CC 1000 OHM 5% 1/4W R30				P	1	C	P	EA	1.00					
155	4700-0405-00	R-FXD CC 2200 OHM 5% 1/4W R72,92				P	1	C	P	EA	2.00					
160	4700-0413-00	R-FXD CC 4700 OHM 5% 1/4W R48,51,18				P	1	C	P	EA	3.00		07-MAR-78			
165	4700-0428-00	R-FXD CC 20K OHM 5% 1/4W R49,100				P	1	C	P	EA	2.00		07-MAR-78			
175	4700-0437-00	R-FXD CC 47K OHM 5% 1/4W R31,32				P	1	C	P	EA	2.00					
180	4700-0445-00	R-FXD CC 100K OHM 5% 1/4W R19				P	1	C	P	EA	1.00		07-MAR-78			
185	4703-0000-00	R-FXD MF SAT OHM 1% 1/8W R34,35,55				P	1		P	EA	3.00		07-MAR-78			
189	4703-0061-00	R-FXD MF 42.2 OHM 1% Y8W R40,45				P	1	*	P	EA	2.00	D	07-MAR-78			
190	4703-0062-00	R-FXD MF 43.2 OHM 1% 1/8W R97				P	1	C	P	EA	1.00					
195	4703-0110-00	R-FXD MF 137 OHM 1% 1/8W R73,91				P	1	C	P	EA	2.00					
200	4703-0143-00	R-FXD MF 301 OHM 1% 1/8W R75,86				P	1	C	P	EA	2.00					
205	4703-0147-00	R-FXD MF 332 OHM 1% 1/8W R78,89				P	1	C	P	EA	2.00					
210	4703-0154-00	R-FXD MF 392 OHM 1% 1/8W R74,85				P	1	C	P	EA	2.00					
212	4703-0155-00	R-FXD MF 402 OHMS 1% 1/8 R42,43				P	1	*	P	EA	2.00		07-MAR-78			
215	4703-0162-00	R-FXD MF 475 OHM 1% 1/8W R76,87				P	1	C	P	EA	2.00					
220	4703-0185-00	R-FXD MF 825 OHM 1% 1/8W R77,88				P	1	C	P	EA	2.00					
225	4703-0186-00	R-FXD MF 845 OHM 1% 1/8W R85				P	1	C	P	EA	1.00					

SINGLE LEVEL BILLS OF MATERIAL

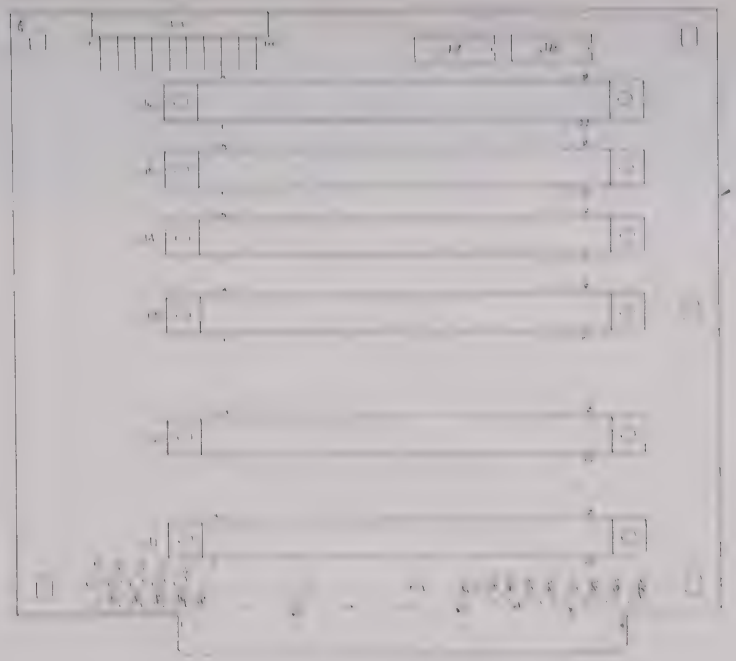
PARENT PART: 8000-0002-95 PCB ASSY-TRANSMIT BRD UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE: A DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
230	4703-0189-00	R-FXD MF 909 OHM 1% 1/8W R80				P	1		C P	EA	1.00					
234	4703-0193-00	R-FXD MF 1000 OHM 1% 1/8W R16,79,90				P	1		C P	EA	3.00		07-MAR-78			
237	4703-0212-00	R-FXD MF 1580 OHM 1% 1/8W R36				P	1		C P	EA	1.00		11-NOV-77			
239	4703-0222-00	R-FXD MF 2000 OHM 1% 1/8W R99				P	1		C P	EA	1.00		07-MAR-78			
240	4703-0226-00	R-FXD MF 2210 OHM 1% 1/8W R21				P	1		C P	EA	1.00		11-NOV-77			
249	4703-0238-00	R-FXD MF 2940 OHM 1% 1/8W R61				P	1		C P	EA	1.00		11-NOV-77			
250	4703-0239-00	R-FXD MF 3010 OHM 1% 1/8W R38,63,64				P	1		C P	EA	3.00		07-MAR-78			
255	4703-0240-00	R-FXD MF 3090 OHM 1% 1/8W R65				P	1		C P	EA	1.00					
260	4703-0242-00	R-FXD MF 3240 OHM 1% 1/8W R54				P	1		C P	EA	1.00		11-NOV-77			
265	4703-0243-00	R-FXD MF 3320 OHM 1% 1/8W R56				P	1		C P	EA	1.00					
270	4703-0252-00	R-FXD MF 4120 OHM 1% 1/8W R81				P	1		C P	EA	1.00					
275	4703-0254-00	R-FXD MF 4320 OHM 1% 1/8W R82				P	1		C P	EA	1.00					
280	4703-0260-00	R-FXD MF 4990 OHM 1% 1/8W R14				P	1		C P	EA	1.00					
290	4703-0287-00	R-FXD MF 9.53K OHM 1% 1/8W R46				P	1		C P	EA	1.00					
295	4703-0288-00	R-FXD MF 9760 OHM 1% 1/8W R50				P	1		C P	EA	1.00					
300	4703-0289-00	R-FXD MF 10.0K OHM 1% 1/8W R17,27-29,33,52,53 98				P	1		C P	EA	8.00		07-MAR-78			
305	4703-0290-00	R-FXD MF 10.2K OHM 1% 1/8W R47				P	1		C P	EA	1.00					
310	4703-0298-00	R-FXD MF 12.4K OHM 1% 1/8W R15				P	1		C P	EA	1.00					
312	4703-0300-00	R-FXD MF 13.0K OHM 1% 1/8W R22				P	1		C P	EA	1.00		07-MAR-78			
315	4703-0303-00	R-FXD MF 14.0K OHM 1% 1/8W R20				P	1		C P	EA	1.00					
317	4703-0306-00	R-FXD MF 15.0K OHM 1% 1/8W R26				P	1		C P	EA	1.00		11-NOV-77			
320	4703-0309-00	R-FXD MF 16.2K OHM 1% 1/8W R83				P	1		C P	EA	1.00					
325	4703-0317-00	R-FXD MF 19.6K OHM 1% 1/8W R84				P	1		C P	EA	1.00					
327	4703-0318-00	R-FXD MF 20.0K OHM 1% 1/8W R60				P	1		C P	EA	1.00		07-MAR-78			
332	4703-0322-00	R-FXD MF 22.1K OHM 1% 1/8W				P	1		C P	EA	1.00		11-NOV-77			

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-95 PCB ASSY-TRANSMIT BRD UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE: A DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
		R59														
334	4703-0343-00	R-FXD MF 36.5K OHM 1% 1/8W			P	1		C	P	EA	1.00		11-NOV-77			
		R13														
335	4703-0347-00	R-FXD MF 40.2K OHM 1% 1/8W			P	1		C	P	EA	2.00					
		R70,93														
336	4703-0351-00	R-FXD MF 44.2K OHM 1% 1/8W			P	1		C	P	EA	1.00		07-MAR-78			
		R25														
337	4703-0352-00	R-FXD MF 45.3K OHM 1% 1/8W			P	1		C	P	EA	1.00		11-NOV-77			
		R71														
340	4703-0356-00	R-FXD MF 49.9K OHM 1% 1/8W			P	1		C	P	EA	1.00		11-NOV-77			
		R94														
346	4703-0372-00	R-FXD MF 73.2K OHM 1% 1/8W			P	1		C	P	EA	2.00		07-MAR-78			
		R11,12														
375	4704-0176-00	R-FXD MF 665 OHM 1% 1/4			P	1			P	EA	2.00					
		R41,44														
380	4750-0019-00	R-VAR SINGLE TURN 2M OHM 10%			P	1			P	EA	1.00					
		R1														
385	4750-0026-00	R-VAR 20 TURN 500 OHM			P	1		B	P	EA	3.00					
		R5,6,7														
390	4750-0027-00	R-VAR 20 TURN 1K OHM			P	1		B	P	EA	2.00					
		R2,10														
395	4750-0029-00	R-VAR 20 TURN 5K OHM			P	1		B	P	EA	2.00		11-NOV-77			
		R8,9														
400	4750-0030-00	R-VAR 20 TURN 10K OHM			P	1		B	P	EA	2.00		11-NOV-77			
		R3,4														
405	4800-3904-00	TSTR-NPN SI SM 2N3904			P	1		C	P	EA	4.00					
		Q1,4,5,7														
410	4800-3906-00	TSTR-PNP SI SM 2N3906			P	1		C	P	EA	1.00					
		Q6														
415	4800-5459-00	TSTR-N-CHNL J-FET 2N5459			P	1		C	P	EA	2.00					
		Q2,3														
420	4802-0702-00	DIODE-ZENER 2.9V 1N702A			P	1		C	P	EA	1.00					
		VR3														
425	4802-0751-00	DIODE-ZENER 5.1V 1N751A			P	1		C	P	EA	2.00					
		VR1,2														
430	4802-0754-00	DIODE-ZENER 6.8V 1N754A			P	1			P	EA	1.00					
		VR4														
435	4802-0825-00	DIODE-REF 6.2V 1N825A			P	1		C	P	EA	2.00					
		VR5,6														
440	4802-4148-00	DIODE-SWITCHING 1N4148			P	1		C	P	EA	12.00					
		CR3-14														
445	4803-0001-00	DIODE-RECT 1A 300V			P	1		C	P	EA	2.00					
		CR1,2														
450	5600-0005-02	XFORMER-SIGNAL OUT 110K			P	1			P	EA	1.00					
		T1														



S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-96 ASSY-PCB MOTHER BD 704 UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE: A DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	1700-0002-96	PCB-MOTHER BD 704 PC1			P	1			P	EA	1.00					
010	2100-0125-00	CON-22PIN DUAL SHT DIP J1-6			P	1		A	P	EA	6.00					
015	2101-0000-01	CON-14 PIN IC SCK LO PR J7,8			P	1			P	EA	2.00		12-MAY-78			
020	2101-0036-10	CONN-MALE PLUG RT ANGL J9			P	1			P	EA	1.00					

NOTES:

NO RECORDS ON DP1:(1,11)MABNOS.FMS

END OF REPORT

WIRING LIST WL 0002 – 96 REV B

TE 1-16-78 ECO Nº 00698 SHEET 1 OF 10

WIRE			FROM		TO		FUNCTION
E	COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
			P1	70	J3	M	VCOHI
			P1	66	J3	K	VCOLOW
			P1	68	J3	H	VCOIN
			P1	43	J2	22	XMTDRV
			J2	22	J3	P	XMTDRV
			P1	47	J3	N	XMTLOW
			P1	45	J3	T	XMTLEV
			P1	60	J3	V	$\overline{\text{QUIET}}$
			J3	V	J6	M	$\overline{\text{QUIET}}$
			P1	62	J3	R	$\overline{\text{100-HZ}}$
			P1	64	J3	S	$\overline{\text{OSC}}$
			P1	39	J3	U	XMTSIG
			P1	35	J2	M	SIG'MT
			P1	57	J3	Y	XMTTIP
			P1	55	J3	Z	XMTRNG
			P1	5	J3	J	CAPMIN
			P1	7	J3	F	PRCAP
			P1	1	J3	E	VFCAP

1004-48

WIRING LIST WL 0002 – 96 REV SEE SHEET ONE

DATE SEE SHEET ONE ECO Nº SEE SHEET ONE

WIRE			FROM		TO		FUNCTION
SIZE	COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
			P1	9	J1	18	$\overline{\text{20KHZ}}$
			J1	18	J3	7	$\overline{\text{20KHZ}}$
			P1	3	J1	W	$\overline{\text{4KHZ}}$
			J1	W	J3	14	$\overline{\text{4KHZ}}$
			J3	14	J4	S	$\overline{\text{4KHZ}}$
			J1	U	J2	20	$\overline{\text{110KHZ}}$
			J2	20	J3	22	$\overline{\text{110KHZ}}$
			P1	2	J1	V	$\overline{\text{FLAT}}$
			P1	10	J1	6	$\overline{\text{135}}$
			J1	L	J3	W	$\overline{\text{135}}$
			P1	8	J1	H	$\overline{\text{600}}$
			J1	H	J3	X	$\overline{\text{600}}$
			P1	13	J1	F	RCVTIP
			P1	15	J1	E	RCVRNG
			P1	6	J1	J	TERM1
			P1	4	J1	K	TERM2
			J1	5	J2	Y	RCVOUT
			J2	Y	J2	13	RCVOUT
			J1	19	J2	R	RCVWGT
			J1	22	J2	N	NOTCH
			P1	29	J2	V	SPKHI

WIRING LIST WL 0002 — 96 REV SEE SHEET ONE

E SEE SHEET ONE ECO Nº SEE SHEET ONE SHEET 3 OF 10

WIRE			FROM		TO		FUNCTION
E	COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
			P1	41	J2	L	$\overline{\text{RCV}}$
			P1	37	J2	K	$\overline{\text{XMT}}$
			J2	K	J6	11	$\overline{\text{XMT}}$
			P1	33	J4	H	$\overline{\text{STEP}}$
			P1	27	J2	10	$\overline{\text{LEVEL}}$
			J2	10	J4	13	$\overline{\text{LEVEL}}$
			J4	13	J6	L	$\overline{\text{LEVEL}}$
			P1	25	J2	S	$\overline{\text{NOTCH}}$
			J2	S	J4	L	$\overline{\text{NOTCH}}$
			P1	23	J2	9	$\overline{\text{NOISE}}$
			J2	9	J4	10	$\overline{\text{NOISE}}$
			J2	T	J4	22	$\overline{\text{IMPL}}$
			J4	22	J5	5	$\overline{\text{IMPL}}$
			P1	14	J4	11	$\overline{\text{TIME}}$
			J4	11	J5	S	$\overline{\text{TIME}}$
			J4	M	J5	T	$\overline{\text{IMPL+0}}$
			J4	N	J5	15	$\overline{\text{IMPL+4}}$
			J4	P	J5	17	$\overline{\text{IMPL+8}}$
			P1	24	J4	T	$\overline{\text{IMPLED}}$
			P1	16	J5	H	$\overline{\text{IM+0LD}}$
			P1	18	J5	J	$\overline{\text{IM+4LD}}$

WIRING LIST WL 0002 – 96 REV SEE SHEET ONE

DATE SEE SHEET ONE ECO Nº SEE SHEET ONE SHEET 4 OF 10

WIRE			FROM		TO		FUNCTION
SIZE	COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
			P1	20	J5	6	$\overline{\text{IM+8LD}}$
			P1	31	J4	7	$\overline{\text{TSTCLR}}$
			J4	7	J5	U	$\overline{\text{TSTCLR}}$
			P1	19	J4	J	$\overline{\text{5MIN}}$
			P1	17	J4	8	$\overline{\text{CONT}}$
			J4	5	J5	20	GATE CT
			P1	52	J5	K	$\overline{\text{IMPULA}}$
			P1	54	J4	6	$\overline{\text{IMPULB}}$
			P1	56	J4	F	$\overline{\text{IMPULD}}$
			P1	49	J5	7	IHTREF
			J2	X	J5	F	IMPULS
			J2	F	J6	S	OUTRNG
			J2	H	J4	U	OVRRNG
			J2	J	J4	20	UNDRNG
			J4	Y	J6	15	$\overline{\text{CLK2HZ}}$
			J4	18	J6	13	AGC20
			J4	V	J6	P	AGC40
			J2	W	J4	K	AGC1

WIRING LIST WL 0002 – 96 REV SEE SHEET ONE

E SEE SHEET ONE ECO Nº SEE SHEET ONE SHEET 5 OF 10

WIRE			FROM		TO		FUNCTION
E	COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
			J3	U	J4	E	AGC2
			J4	21	J6	7	1MHZ
			J4	W	J5	16	SCNFRQ
			J5	16	J6	21	SCNFRQ
			J4	Z	J6	F	CKMES
			J2	7	J6	J	ENDMES
			J2	8	J6	H	LOGWND
			J2	Z	J4	15	FRQ
			J4	R	J6	14	FRQCNT
			J4	9	J5	E	MINCNT
			J5	L	J6	16	MAGCNT
			J5	21	J6	R	BLNLEV
			J5	11	J6	K	$\overline{\text{TIMXFR}}$
			J5	M	J6	10	$\overline{\text{TIMCLR}}$
			J5	R	J6	N	$\overline{\text{MDST}}$
			J4	17	J6	8	$\overline{\text{LSDON}}$
			J6	U	J8	7	FRQLSD
			J6	V	J8	10	FRQISD

WIRING LIST WL 0002 – 96 REV SEE SHEET ONE

DATE SEE SHEET ONE ECO Nº SEE SHEET ONE SHEET 6 OF 10

WIRE			FROM		TO		FUNCTION
SIZE	COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
			J6	17	J8	11	FRQ2SD
			J6	T	J8	12	FRQ3SD
			J6	22	J8	1	FRQMSD
			J6	20	J8	13	$\overline{\text{FRQA}}$
			J6	W	J8	6	$\overline{\text{FRQB}}$
			J6	Y	J8	8	$\overline{\text{FRQC}}$
			J6	18	J8	9	$\overline{\text{FRQD}}$
			J6	Z	J8	2	$\overline{\text{FRQE}}$
			J6	19	J8	14	$\overline{\text{FRQF}}$
			J6	X	J8	5	$\overline{\text{FRQG}}$
			J6	5	J7	2	$\overline{\text{POSSGN}}$
			J6	E	J7	1	$\overline{\text{NEGSGN}}$
			J6	12	J7	7	LEVLSD
			J5	N	J7	10	LEVISD
			J5	22	J7	13	LEVMSD
			J6	6	J7	12	$\overline{\text{DECLEV}}$
			J5	Z	J7	9	$\overline{\text{LEVA}}$

WIRING LIST WL 0002 – 96 REV SEE SHEET ONE

E SEE SHEET ONE ECO Nº SEE SHEET ONE SHEET 7 OF 10

WIRE			FROM		TO		FUNCTION
E	COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
			J5	18	J7	6	$\overline{\text{LEVB}}$
			J5	X	J7	4	$\overline{\text{LEVC}}$
			J5	V	J7	8	$\overline{\text{LEVD}}$
			J5	Y	J7	14	$\overline{\text{LEVE}}$
			J5	19	J7	11	$\overline{\text{LEVF}}$
			J5	W	J7	5	$\overline{\text{LEVG}}$
			P1	21	P1	22	DIGGND
			P1	22	E11		
	Blk	2"	E11		E4		
			E4		J9	4	
			J9	4	J4	1	
			J4	1	J4	A	
			J4	A	J5	1	
			J5	1	J5	A	
			J5	A	J6	1	
			J6	1	J6	A	DIGGND
			P1	53	P1	51	CKTGND
			P1	51	E12		
	Grn	3"	E12		E9		
			E9		J1	1	
			J1	1	J1	A	
			J1	A	J2	1	
			J2	1	J2	A	
			J2	A	J3	1	
			J3	1	J3	A	
			J3	A	J9	9	CKTGND

WIRING LIST WL 0002 – 96 REV SEE SHEET ONE

DATE SEE SHEET ONE ECO Nº SEE SHEET ONE SHEET 8 OF 10

WIRE			FROM		TO		FUNCTION
SIZE	COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
			J9	4	J9	10	GND COMMON
			J9	9	J9	10	GND COMMON
			P1	73	P1	74	+9V
			P1	74	E17		
20	Brn	4¼"	E17		E8		
			E8		J1	2	
			J1	2	J1	B	
			J1	B	J2	2	
			J2	2	J2	B	
			J2	B	J3	2	
			J3	2	J3	B	
			J3	B	J5	2	
			J5	2	J5	B	
			J5	B	J6	2	
			J6	2	J6	B	+9V
			P1	71	P1	72	-9V
			P1	72	E16		
20	Yel	3 5/8"	E16		E10		
			E10		J1	3	
			J1	3	J1	C	
			J1	C	J2	3	
			J2	3	J2	C	
			J2	C	J3	3	
			J3	3	J3	C	
			J3	C	J4	3	
			J4	3	J4	C	
			J4	C	J5	3	
			J5	3	J5	C	
			J5	C	J6	3	
			J6	3	J6	C	
			J6	C	J9	7	-9V

WIRING LIST WL 0002 – 96 REV SEE SHEET ONE

E SEE SHEET ONE ECO Nº SEE SHEET ONE SHEET 9 OF 10

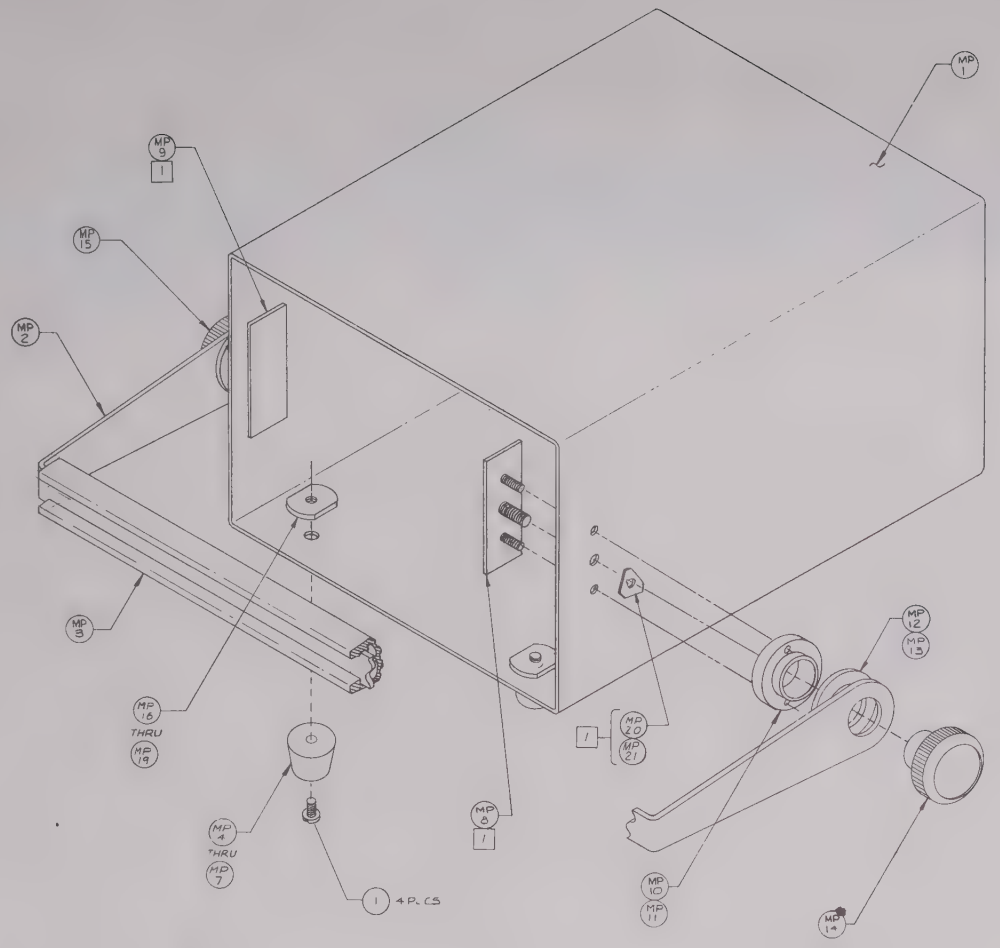
WIRE		FROM		TO		FUNCTION
COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
		P1	11	P1	12	+5V
		P1	12	J1	4	
		J1	4	J1	D	
		J1	D	J2	4	
		J2	4	J2	D	
		J2	D	J3	4	
		J3	4	J3	D	
		J3	D	J4	4	
		J4	4	J4	D	
		J4	D	J5	4	
		J5	4	J5	D	
		J5	D	J6	4	
		J6	4	J6	D	+5V
		J2	5	J3	5	+VREF
		P1	58	J2	6	-VREF
		J2	6	J3	6	-VREF
		P1	77	P1	78	ACGND
		P1	78	E19		
Vio	4 3/4"	E19		E6		
		E6		P9	6	ACGND
		P1	63	P1	65	DCGND
		P1	65	E14		
Blu	4¼"	E14		E2		
		E2		J9	2	DCGND
		P1	79	P1	80	AC9V
		P1	80	E20		
Org	5¼"	E20		E5		
		E5		J9	5	AC9V

WIRING LIST WL 0002 – 96 REV SEE SHEET ONE

DATE SEE SHEET ONE ECO Nº SEE SHEET ONE

WIRE			FROM		TO		FUNCTION
SIZE	COLOR	LENGTH	DESIGNATOR	PIN Nº	DESIGNATOR	PIN Nº	
			P1	59	P1	61	BAT9V
			P1	61	E13		
20	Wht	4"	E13		E1		
			E1		J9	1	BAT9V
			P1	75	P1	76	AC5V
			P1	76	E18		
20	Gry	4½"	E18		E7		
			E7		P9	8	AC5V
			P1	67	P1	69	BAT5V
			P1	69	E15		
20	Red	4¼"	E15		E3		
			E3		P9	3	BAT5V

REVISIONS				
SYM.	DESCRIPTION		DATE	APPROVED
A	PRODUCTION RELEASE	E.W.	11/16/77	JWL
B	REVISED PER ECO # 00893	L.N	2/1/78	J.H.
C	REVISED PER ECO # 00814	T.N.	12-18-78	DJ



ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.
1	2800-0164-00	4	SCREW B.H. #8-32 x 5/16 LG.			

LIST OF MATERIAL OR PARTS LIST

NEXT ASSY.	QTY. NEXT	QTY. FINAL	MODEL NO.
J-0003-74	1	—	704A
J-0003-73	1	—	704A

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES.
DIMENSIONS BEFORE PLATING.
BREAK ALL SHARP CORNERS.
63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED
TOLERANCES ON:
DECIMALS
ANGLES ± 1°
HOLES (DRILL) +.003 −.001
FINISH

HALCYON INC.
501 VANDELL WAY
CAMPBELL, CA 95008

ENCLOSURE ASSEMBLY
MODEL (704A)

DATE 1-7-77 | SIZE D | DRAWING NO. ED-0003-47 | REV. C
BY Dan Cain
SCALE — | STOCK AS 8500 | SHEET

[1] HOLD MP8 AND MP9 IN PLACE WHILE INSTALLING MP20 AND MP21.

NOTES - UNLESS OTHERWISE SPECIFIED

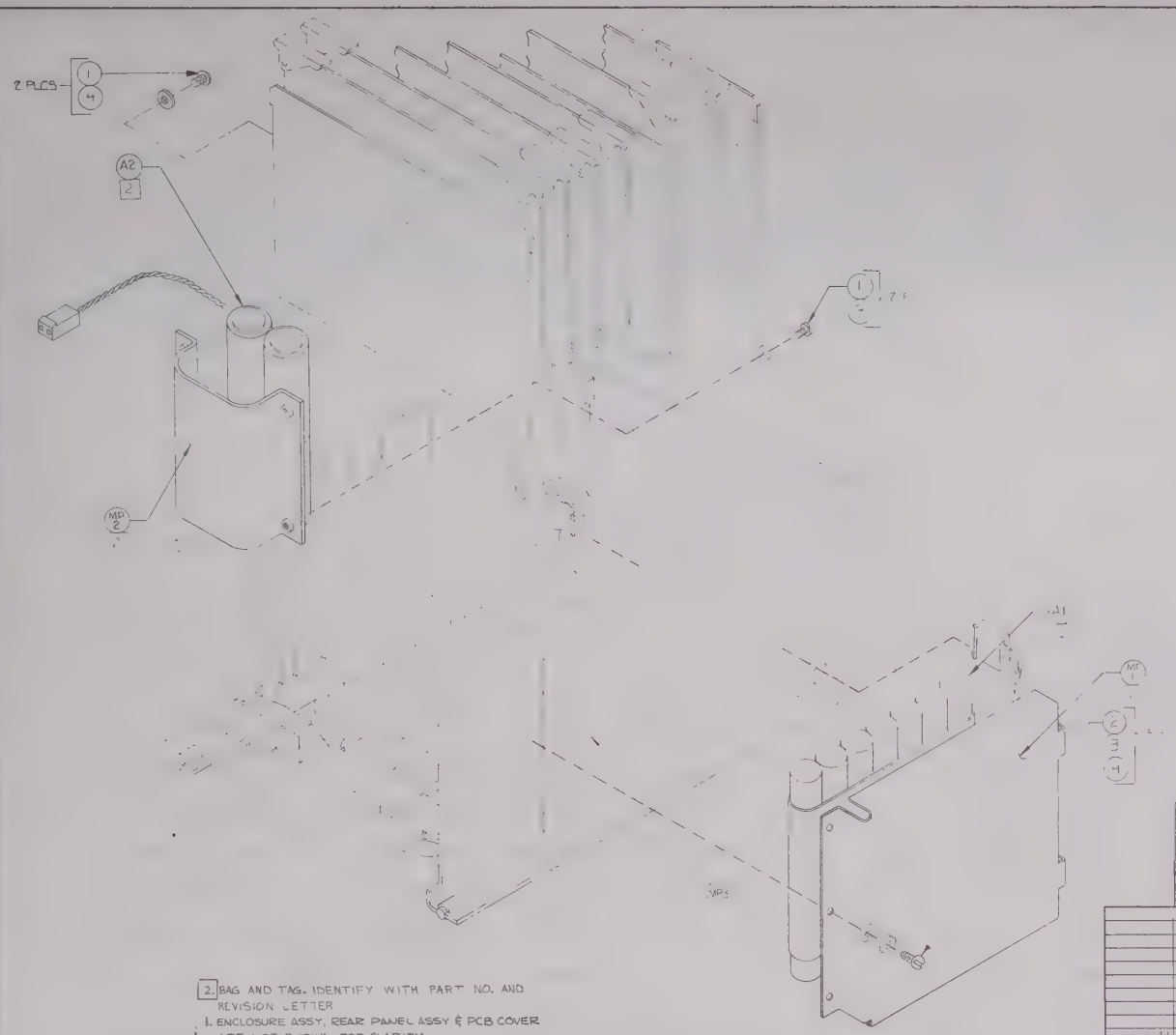
EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8500-0003-47 ENCLOSURE ASSY 704A UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ENC: B SRCE CODE:A TYPE: 1 ARC: X PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CD	S C E	T Y P	S P K	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START. DATE	S/N	CLOSE DATE	S/N
005	2401-0020-00		KNOB-HANDLE RIGHT HAND THD #10-32 MP14		P	1			P	EA	1.00		01-JAN-79			
007	2401-0020-01		KNOB-HANDLE LEFT HAND THD #10-32 MP15		P	1		*	P	EA	1.00		01-JAN-79			
010	2500-0001-15		GRIP-HANDLE 701A MP3		P	1			P	EA	1.00					
015	2500-0001-44		ENCLOSURE-701A MP1		P	1			P	EA	1.00					
019	2500-0001-57		BACKING PLATE-FEET MP 16-19		P	1			P	EA	4.00		07-MAR-78			
020	2500-0001-58		BACKING PLATE-HANDLE MP8		P	1			P	EA	1.00		01-JAN-79			
022	2500-0003-16		BACKING PLATE-HANDLE-LEFT SIDE MP9		P	1		*	P	EA	1.00		01-JAN-79			
025	2500-0003-64		HANDLE-ENCLOSURE 704A MP2		P	1			P	EA	1.00					
030	2500-0003-69		SPACER-HANDLE, 700-SERIES MP12,13		P	1			P	EA	2.00					
035	2500-0003-70		SPACER-KNOB,700 SERIES MP10,11		P	1			P	EA	2.00					
038	2801-0022-04		NUT-TRIANGULAR 10 - 32 MP20,21		P	1		*	P	EA	2.00		01-JAN-79			
040	2802-0210-36		BUMPER-RECESSED MP4-7		P	1			P	EA	4.00					

REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED
A	PRODUCTION RELEASE	11/1/	
B	REVISED PER ECO #00958	1-19-78	



INSTALLATION INSTRUCTIONS:

1. REMOVE 4 #6 F.H. SCREWS FROM REAR PANEL ASSY & DISCONNECT D/C POWER CABLE FROM POWER SUPPLY PCB
2. REMOVE ENCLOSURE ASSY & PCB COVER FROM UNIT
3. ASSEMBLE A1 & MP1 TO CHASSIS WITH 5 #4 B.H. SCREWS AS SHOWN.

ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT
4	2800-2030-01	7	WASHER-FLAT #4	2		
-	7300-3[illegible]-32	7	WASHER-SPLIT LOCK #4	2		
-	[illegible]-4122 0	5	SCREW-P.H. 4-40 x 3/8-32	2		
-	[illegible]	1	SCREW-P.H. 4-40 x 1/4	2		

LIST OF MATERIAL OR PARTS LIST

NEXT ASSY	QTY. NEXT	QTY. FWD.	MODEL NO.
[illegible]-74	-	1	704A
[illegible]-13	1	1	704A

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.
63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED.
TOLERANCES ON:
DECIMALS .[illegible]
ANGLES ± 1°
HOLES (DRILL) +.003 -.001
FINISH: SEE NOTES

HALCYON INC
501 VANDELL WAY
CAMPBELL, CA 95008

BATTERY OPTION KIT ASSEMBLY MODEL (704A)

DATE 1-18-77 | SIZE D | DRAWING NO. ED-0003-52 | REV. B
BY Don Call
APPROVED
SCALE --- | STOCK AS 8220 | SHEET 1 of 1

2. BAG AND TAG. IDENTIFY WITH PART NO. AND REVISION LETTER
1. ENCLOSURE ASSY, REAR PANEL ASSY & PCB COVER ARE NOT SHOWN FOR CLARITY.

NOTES:- UNLESS OTHERWISE SPECIFIED

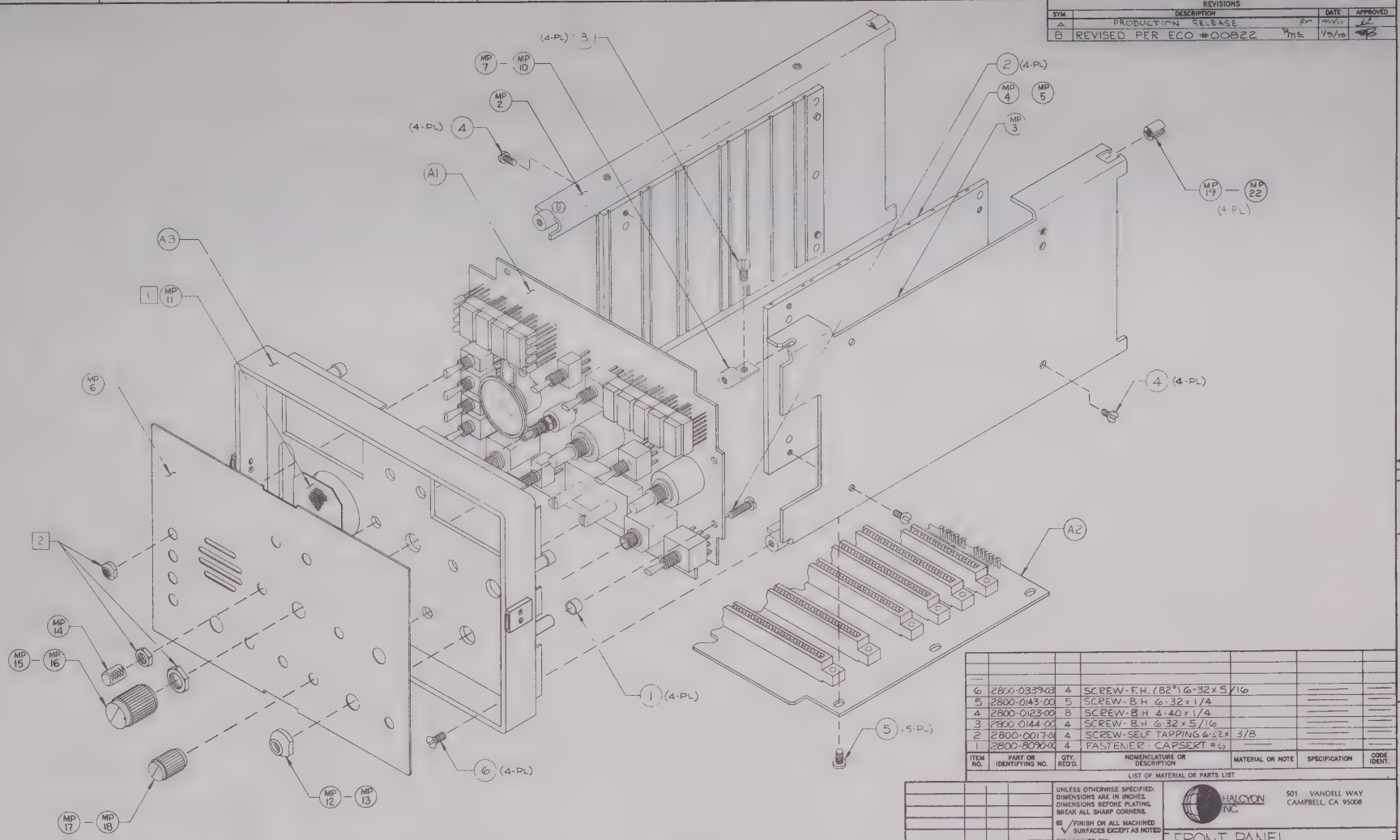
EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8220-0003-52 BATT OPTION KIT 704A UM: EA PROD CODE: JB ECN:00958 ASSEMBLY QTY: 1
ERC: B SRCE CODE:A TYPE: 1 ARC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CD	S C E	T Y P	S A P R	A P R C	P L N	UM	EXTENDED QTY PER	ECN CHG	START - DATE	S/N	CLOSE DATE	S/N
005	2500-0001-48		SHIELD-BATTERIES MP1	JZ	P	1		R	P	EA	1.00					
010	2500-0003-06		CLAMP-4.8V BATT 704A MP2	J8	P	1		R	P	EA	1.00					
013	2500-0004-96		INSULATOR-SIDE PANEL W/O HOLES MP3		P	1		*	P	EA	1.00		13-AUG-79			
015	8800-0002-39	A	ASSY BATTERY 4.8V A2	JZ	A	1		A	P	EA	1.00					
020	8800-0002-40	A	ASSY BATTERY 8.4V A1	JZ	A	1		A	P	EA	1.00					

REVISIONS				
SYM.	DESCRIPTION		DATE	APPROVED
A	PRODUCTION RELEASE	RM	10/4/10	
B	REVISED PER ECO #00822	RM	1/3/10	



ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.
6	2800-0339-03	4	SCREW-F.H. (82°) 6-32 x 5/16			
5	2800-0143-00	5	SCREW-B.H. 6-32 x 1/4			
4	2800-0123-00	8	SCREW-B.H. 4-40 x 1/4			
3	2800-0144-00	4	SCREW-B.H. 6-32 x 5/16			
2	2800-0017-01	4	SCREW-SELF TAPPING 6-32 x 3/8			
1	2800-8090-00	4	FASTENER-CAPSERT #6			

LIST OF MATERIAL OR PARTS LIST

[2] TOGGLE DRESS NUTS AND POT JAM NUTS ARE SUPPLIED WITH COMPONENT KITS BY VENDORS, INSTALL AS REQ'D.

[1] AFTER ALL COMPONENTS ARE FITTED THRU FRONT PANEL (ITEM MP1), LAY SPEAKER SCREEN (ITEM MP11) ON LABEL SPEAKER GRILL OPENING AND PRESS ONTO ADHESIVE. FIT FRONT LABEL ONTO PANEL, THEN ADD ALL DRESS NUTS AND KNOBS.

NOTES:- UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.
63 FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED
TOLERANCES ON:
DECIMALS
ANGLES ±1°
HOLES (DRILL) +.003 -.001
FINISH: SEE NOTES

NEXT ASSY.	QTY. NEXT	QTY. FINAL	MODEL NO.

HALCYON INC.
501 VANDELL WAY
CAMPBELL, CA 95008

FRONT PANEL ASSEMBLY MODEL (704 A)

DATE 2477 | SIZE D | DRAWING NO. ED-0003-65 | REV. B

BY Don Call | SCALE — | STOCK AS 8210 | SHEET 1 of 1

DO NOT SCALE

ED-0003-65 B

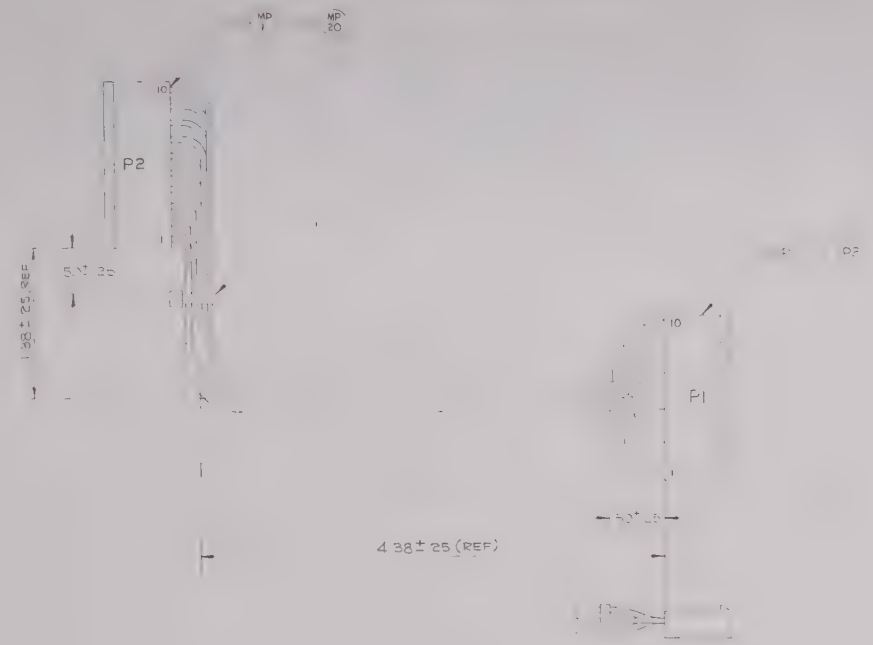
EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8210-0003-65 FRONT PANEL ASSY 704A UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: C SRCE CODE:A TYPE: 1 ARC: X PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CD	S C E	T Y P E	S P R C	A R C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	2401-0017-01		KNOB-.5 DIA 1/8 SHAFT MP17,18		P	1	*	P	P	EA	2.00		07-MAR-78			
010	2401-0054-07		KNOB-.70 DIA W/DOT SKIRT 1/4 MP15,16		P	1	B	P	P	EA	2.00					
015	2450-0003-01		LABEL FRONT 704A MP6		P	1			P	EA	1.00					
020	2500-0001-37		NUT-DRESS 310 JACK MP12,13		P	1	C	P	P	EA	2.00					
025	2500-0002-41		SCREEN SPEAKER MP11		P	1			P	EA	1.00					
030	2500-0003-02		SIDE PLATE RH 704A MP3		P	1			P	EA	1.00					
035	2500-0003-03		SIDE PLATE LH 704A MP2		P	1			P	EA	1.00					
040	2500-0003-04		PLATE-PCB GUIDE 704A MP4-5		P	1			P	EA	2.00					
045	2500-0003-09		LUG-FRONT MOUNT 704A MP7-10		P	1			P	EA	4.00					
055	2500-1134-01		KNOB-KNURLED W/INDICATOR MP14		P	1			P	EA	1.00					
060	2800-8064-01		RETAINER-EDGE PANEL MP19-22		P	1			P	EA	4.00					
065	8000-0002-91	C	PCB ASSY-DISP FR PANEL A1		A	1		Y	P	EA	1.00					
070	8000-0002-96	B	ASSY-PCB MOTHER BD 704 A2		A	1		Y	P	EA	1.00					
075	8100-0004-73	A	ASSY, BEZEL-FRONT KEEPER A3		A	1	*	P	P	EA	1.00		29-JAN-79			

REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED
A	PRODUCTION RELEASE	2/1/17	



ITEM NO	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT

LIST OF MATERIAL OR PARTS LIST

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.

63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:

DECIMALS

ANGLES ±1°

HOLES (DRILL) +.003 −.001

FINISH

NEXT ASSY | QTY. NEXT | QTY. FINAL | MODEL NO.

HALCYON INC.
501 VANDELL WAY
CAMPBELL, CA 95008

CABLE ASSEMBLY D/C POWER MODEL (704A)

DATE 2-16-17 | SIZE D | DRAWING NO. ED-0003-80 | REV. A

BY [illegible]

APPROVED [illegible]

APPROVED

SCALE — | STOCK AS SOLD | SHEET 1 of 1

1. FOR WIRE LIST SEE WL-0003-80

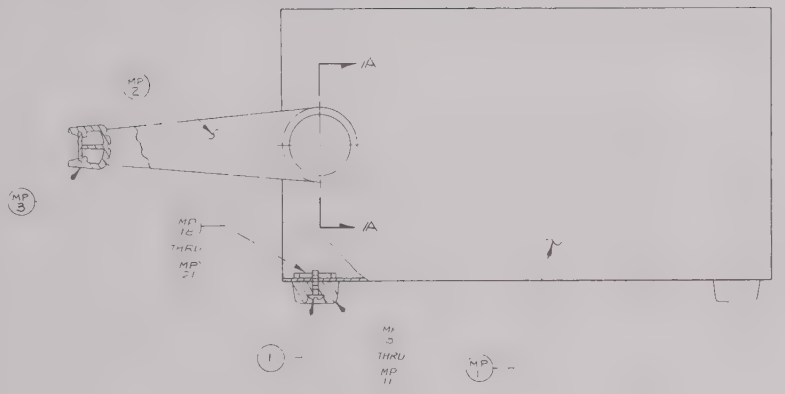
NOTES:- UNLESS OTHERWISE SPECIFIED

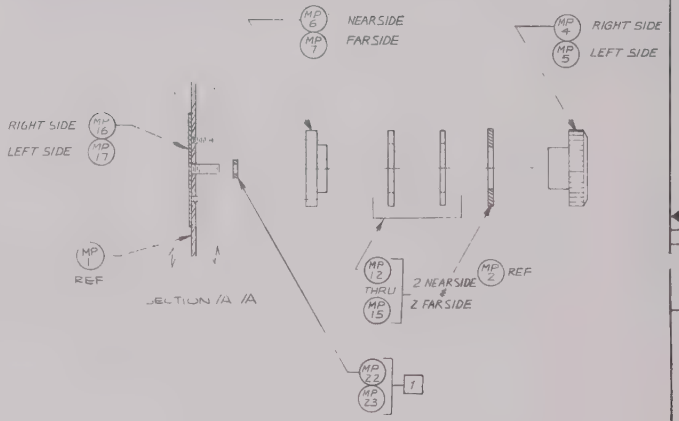
S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 6010-0003-80 — CABLE ASSY DC PWR 704A UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: A SRCE CODE: A DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	2101-0017-10	CON-10 CONTACT FEMALE P1-2			P	1		C	P	EA	2.00					
010	2101-0017-30	CONTACT-PIN MOLEX MP1-20			P	1		D	P	EA	20.00					

SYM.	DESCRIPTION	DATE	APPROVED
A	PRODUCTION RELEASE		
B	REVISED PER ECO#00693	L.N	
C	REVISED PER ECO # 00814	T.N	12/8/78





ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.
1	2800-0164-00	4	SCREW B.H.*8-32 x 5/16 LG.			

LIST OF MATERIAL OR PARTS LIST

1 HOLD MP16 AND MP17 IN PLACE WHILE INSTALLING MP22 AND MP23.

NOTES-UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.

63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:

DECIMALS

ANGLES ± 1°

HOLES (DRILL) +.003 -.001

FINISH

NEXT ASSY	QTY. NEXT	QTY. FINAL	MODEL NO
1 CC-034	1		1C4A
1 CC-045	1	-	1C4A

HALCYON
501 VANDELL WAY
CAMPBELL, CA 95008

ASSEMBLY ENCLOSURE-704A (W/O DIAL AND HOLD)

DATE 6-3-77 BY

SIZE D DRAWING NO. ED-0004-34 REV C

SCALE 1 X STOCK AS 8500 SHEET 1 of 1

DO NOT SCALE DWG

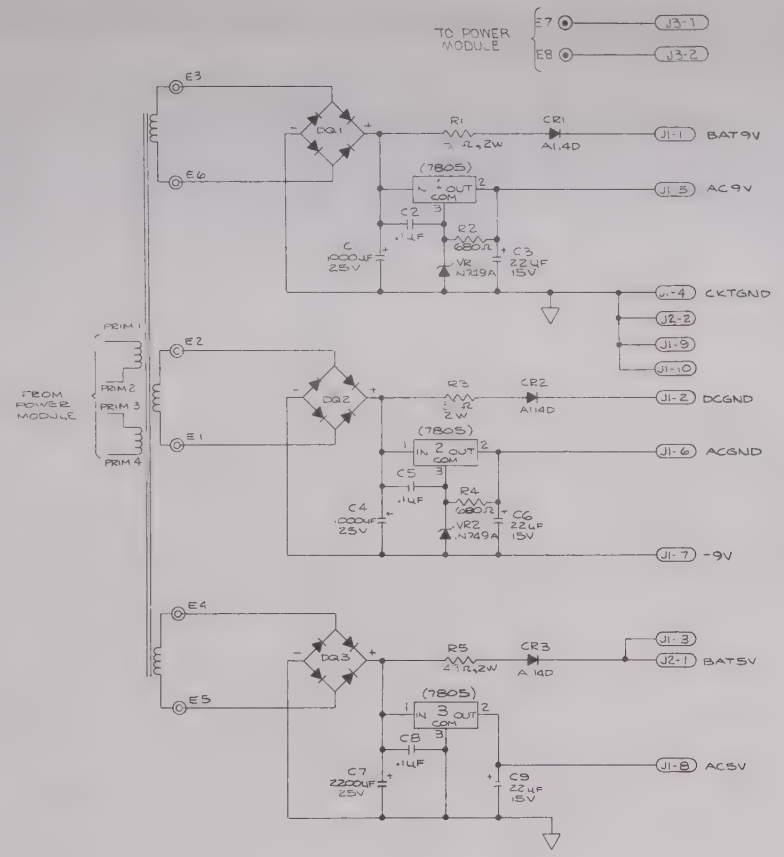
EFFECTIVITY DATE: ALL

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8500-0004-34 ENC ASSY 704 W0/D&H UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE:A TYPE: 1 ABC: X PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	E R C	PART DESCRIPTION / REMARKS	PR CD	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	2401-0020-00		KNOB-HANDLE RIGHT HAND THD #10-32 MP4		P	1			P	EA	1.00		01-JAN-79			
007	2401-0020-01		KNOB-HANDLE LEFT HAND THD #10-32 MP5		P	1		*	P	EA	1.00		01-JAN-79			
010	2500-0001-15		GRIP-HANDLE 701A MP3		P	1			P	EA	1.00					
015	2500-0001-44		ENCLOSURE-701A MP1		P	1			P	EA	1.00					
019	2500-0001-57		BACKING PLATE-FEET MP 18-21		P	1			P	EA	4.00		07-MAR-78			
020	2500-0001-58		BACKING PLATE-HANDLE MP16		P	1			P	EA	1.00		01-JAN-79			
022	2500-0003-16		BACKING PLATE-HANDLE-LEFT SIDE MP17		P	1		*	P	EA	1.00		01-JAN-79			
025	2500-0003-64		HANDLE-ENCLOSURE 704A MP2		P	1			P	EA	1.00					
030	2500-0003-69		SPACER-HANDLE, 700-SERIES MP12-15		P	1			P	EA	4.00					
035	2500-0003-70		SPACER-KNOB,700 SERIES MP6,7		P	1			P	EA	2.00					
038	2601-0022-04		NUT-TRIANGULAR 10 - 32 MP22,23		P	1		*	P	EA	2.00		01-JAN-79			
040	2802-0210-36		BUMPER-RECESSED MP8-11		P	1			P	EA	4.00					

REVISIONS				
SYM	DESCRIPTION		DATE	APPROVED
A	PRODUCTION RELEASE		7-5-76	
B	REVISED PER ECO# C0919	KS	8-17-76	
C	REVISED PER ECO # D1066		10/8/76	



1. IC1,2 & 3 TO HAVE HEATSINKS INSTALLED

NOTES: UNLESS OTHERWISE SPECIFIED.

ITEM NO	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT
LIST OF MATERIAL OR PARTS LIST						

NEXT ASSY	QTY NEXT	QTY FINAL	MODEL NO.
9000 1104 00	1		545A
8000 1104 00	1	–	704A
8000 1104-00	1	–	701A

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.

⊠ √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED

TOLERANCES ON:

DECIMALS

ANGLES ± 1°

HOLES (DRILL) +.003 −.001

FINISH SEE NOTES

HALCYON INC. 501 VANDELL WAY CAMPBELL, CA 95008

POWER SUPPLY BOARD

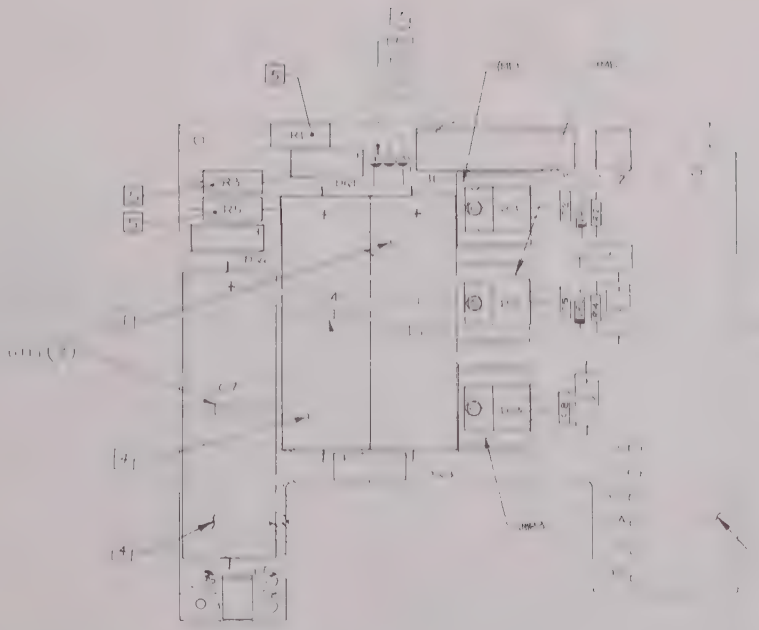
DATE 5 MAY 76 | SIZE D | DRAWING NO. SD-1104-00 | REV C

BY | APPROVED | APPROVED | SCALE — | STOCK AS — | SHEET 1 OF 1

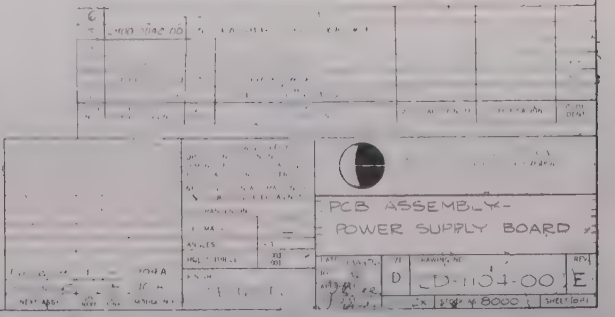
DO NOT SCALE DWG

SD-1104-00 C

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
A	PRODUCTION RELEASE	11-17-76	
B	REVISED PER ECO #8006-110		
C	REVISED PER ECO #8011-14		
D	REVISED PER ECO # 8088		
E	REVISED PER ECO # 8117	8-1-79	



TYP IC1-IC3



[5] INSTALL R1, 3 AND 5 APPROX .125 UP OFF BOARD.

[4] SE[illegible] ASSEMBLY C1,C4,&C7.

[3] CR1-CR3 TO BE RAISED OFF PCB AT INSTALLATION.

2. FOR LIST OF MATERIALS SEE 8000-1104-00.

1. FOR SCHEMATIC SEE SD-1104-00.

NOTES-UNLESS OTHERWISE SPECIFIED

PCB ASSEMBLY-
POWER SUPPLY BOARD

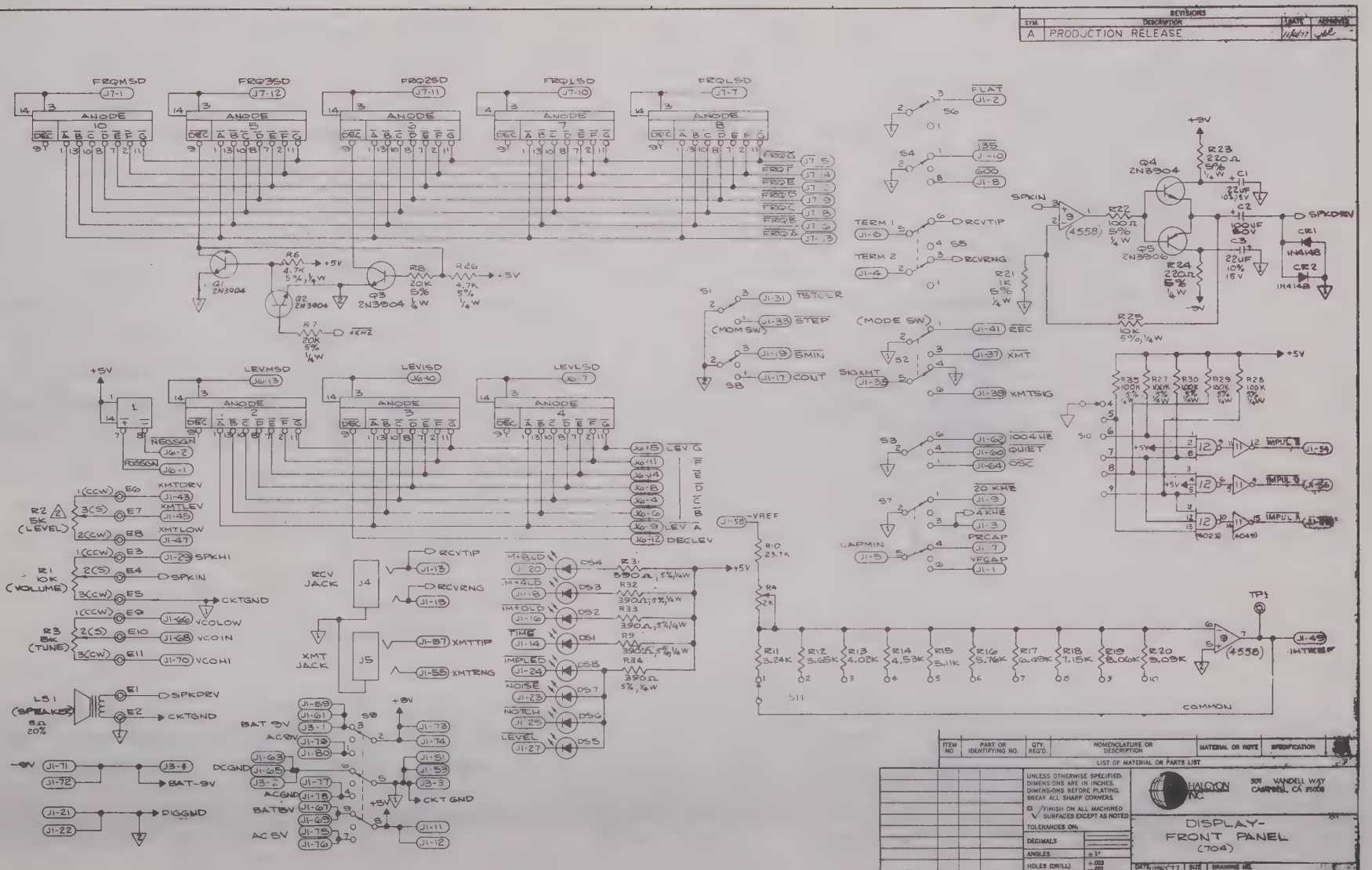
SIZE	DRAWING NO.	REV
D	D-1104-00	E

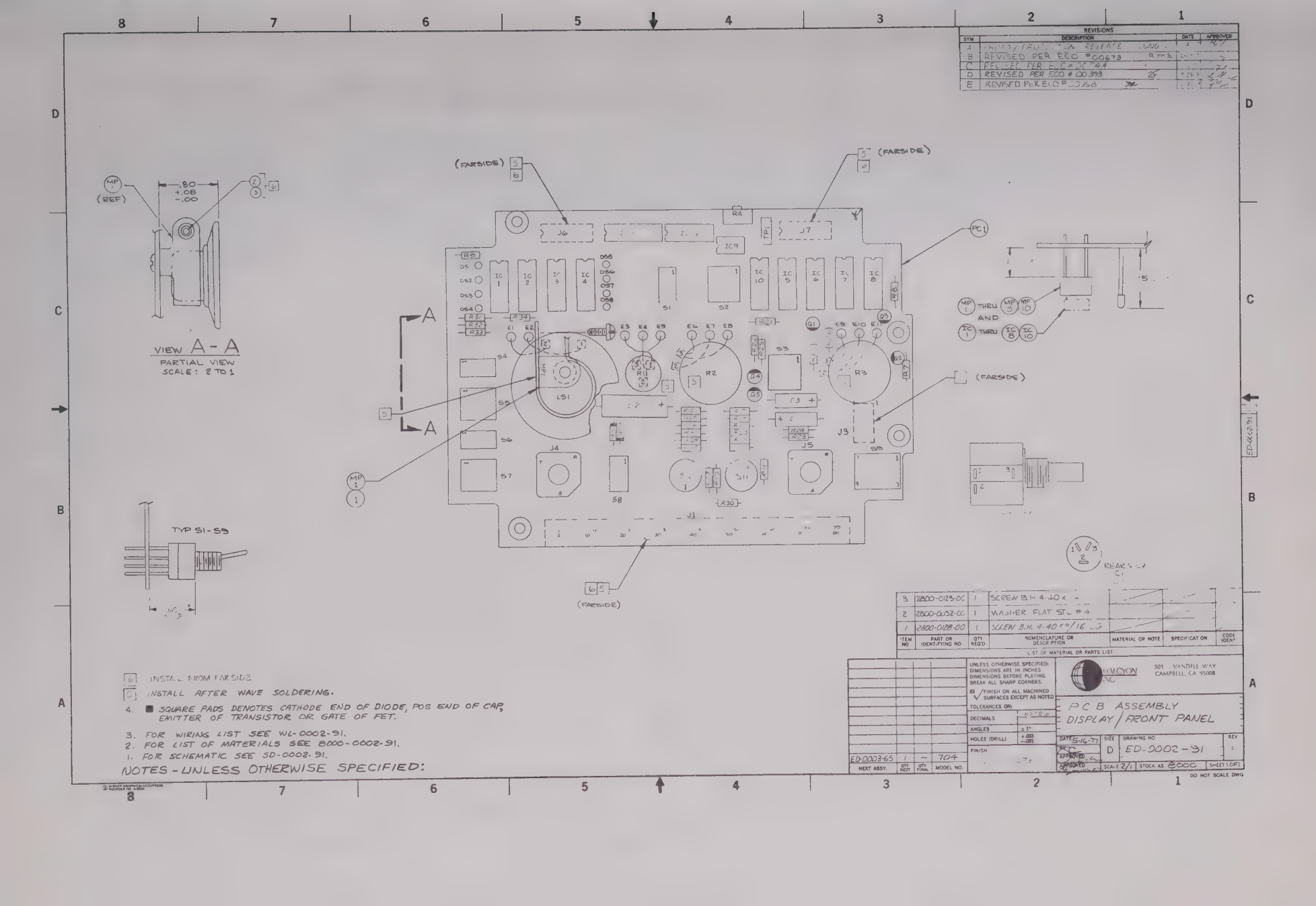
SCALE 2/1 X 8000 | SHEET 1 OF 1

S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-90 PCB ASSY-IMPULSE BRD UM: EA PROD CODE: ECN: ASSEMBLY QTY: 1
ERC: B SRCE CODE: A DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	START S/N	CLOSE DATE	CLOSE S/N
120	3132-0010-00	IC-7 NPN TRANSISTOR ARRAY IC19				P	1		P	EA	1.00					
125	4700-0397-00	R-FXD CC 1000 OHM 5% 1/4W R38-41				P	1	C	P	EA	4.00					
130	4700-0413-00	R-FXD CC 4700 OHM 5% 1/4W R35				P	1	C	P	EA	1.00					
133	4700-0417-00	R-FXD CC 6800 OHM 5% 1/4W R5-8,42-45				P	1	C	P	EA	8.00		04-Nov-77			
135	4700-0421-00	R-FXD CC 10K OHM 5% 1/4W R21,23				P	1	C	P	EA	2.00					
140	4700-0445-00	R-FXD CC 100K OHM 5% 1/4W R13,19				P	1	C	P	EA	2.00					
145	4700-0449-00	R-FXD CC 150K OHM 5% 1/4W R26,29,34				P	1	C	P	EA	3.00					
150	4700-0465-00	R-FXD CC 680K OHM 5% 1/4W R11,R36,R37				P	1	C	P	EA	3.00					
155	4703-0245-00	R-FXD MF 3480 OHM 1% 1/8W R14				P	1	C	P	EA	1.00					
160	4703-0257-00	R-FXD MF 4640 OHM 1% 1/8W R15				P	1	C	P	EA	1.00					
165	4703-0287-00	R-FXD MF 9.53K OHM 1% 1/8W R20				P	1	C	P	EA	1.00					
170	4703-0289-00	R-FXD MF 10.0K OHM 1% 1/8W R10,12,16,17,18				P	1	C	P	EA	5.00					
177	4703-0296-00	R-FXD MF 11.8K OHM 1% 1/8W R33				P	1	C	P	EA	1.00		04-Nov-77			
182	4703-0309-00	R-FXD MF 16.2K OHM 1% 1/8W R22				P	1	C	P	EA	1.00		04-Nov-77			
184	4703-0313-00	R-FXD MF 17.8K OHM 1% 1/8W R24				P	1	C	P	EA	1.00		04-Nov-77			
193	4703-0335-00	R-FXD MF 30.1K OHM 1% 1/8W R27,30,32				P	1	C	P	EA	3.00		04-Nov-77			
195	4703-0389-00	R-FXD MF 110K OHM 1% 1/8W R9				P	1	C	P	EA	1.00					
200	4703-0431-00	R-FXD MF 301K OHM 1% 1/8W R25,28,31				P	1	C	P	EA	3.00					
205	4710-0017-43	R-PAK 8PIN 4 RES RP1&2				P	1	*	P	EA	2.00		07-Mar-78			
210	4750-0011-00	R-VAR SNGL TURN 20K OHM R1-4				P	1	C	P	EA	4.00		07-Mar-78			
215	4800-3904-00	TSTR-NPN SI SH 2N3904 Q2,4,5				P	1	C	P	EA	3.00					
220	4800-3906-00	TSTR-PNP SI SH 2N3906 Q1,3,6-9				P	1	C	P	EA	6.00					
225	4802-0751-00	DIODE-ZENER 5.1V 1N751A VR1,2,3				P	1	C	P	EA	3.00					


REVISIONS
SYM | DESCRIPTION | DATE | APPROVED
A | PRODUCTION RELEASE | 11/14/77
FRQMSD
FRQ3SD
FRQ2SD
FRQ1SD
FRQLSD
ANODE
LEVMSD
LEVISD
LEVLSD
R6 4.7K 5% 1/4W
R8 20K 5% 1/4W
R26 4.7K 5% 1/4W
R7 20K 5% 1/4W
Q1 2N3904
Q2 2N3904
Q3 2N3904
4KHZ
S1 (MOM SW)
S8
TSTCLR
STEP
SMIN
COUT
(MODE SW)
S2
EEC
XMT
SKXMT
XMTSIG
S6
FLAT
S4
135
600
S5
TERM 1
TERM 2
RCVTIP
RCVRNG
R21 1K 5% 1/4W
Q4 2N3904
Q5 2N3906
SPKIN
SPKDRV
R22 100Ω 5% 1/4W
R23 240Ω 5% 1/4W
R24 220Ω 5% 1/4W
R25 10K 5% 1/8W
C1 22UF 10% 15V
C2 100UF 6.3V
C3 22UF 10% 15V
CR1 IN4148
CR2 IN4148
S3
1004HZ
QUIET
OSC
S7
20 KHZ
4 KHZ
PRECAP
CAPMIN
VFCAP
R35 100K 5% 1/4W
R27 100K 5% 1/4W
R30 100K 5% 1/4W
R29 100K 5% 1/4W
R28 100K 5% 1/4W
S10
IMPUL 1
IMPUL 2
IMPUL 3
(4022)
(4049)
R2 5K (LEVEL)
R1 10K (VOLUME)
R3 5K (TUNE)
XMTDRV
XMTLEV
XMTLOW
SPKHI
SPKIN
CKTGND
VCOLOW
VCOIN
VCOHI
LS1 (SPEAKER) 8Ω 20%
SPKDRV
CKTGND
RCV JACK J4
XMT JACK J5
RCVTIP
RCVRNG
XMTTIP
XMTRNG
M+8LD
M+4LD
IM+OLD
TIME
IMPLED
NOISE
NOTCH
LEVEL
DS4
DS3
DS2
DS1
DS8
DS7
DS6
DS5
R31 390Ω 5% 1/4W
R32 390Ω 5% 1/4W
R33 390Ω 5% 1/4W
R9 390Ω 5% 1/8W
R34 390Ω 5% 1/4W
+5V
-VREF
R10 23.7K
R4 2K
R11 3.24K
R12 3.65K
R13 4.02K
R14 4.53K
R15 5.11K
R16 5.76K
R17 6.49K
R18 7.15K
R19 8.06K
R20 9.09K
S11
COMMON
TP1
IMTREF
-9V
J3-8
BAT -9V
DIGGND
BAT 3V
AC 5V
DCGND
ACGND
BATBV
CKT GND
S9
NOTES-UNLESS OTHERWISE SPECIFIED
1. RESISTORS ARE IN OHMS, 1/8 W, 1%.
ITEM NO | PART OR IDENTIFYING NO. | QTY. REQ'D. | NOMENCLATURE OR DESCRIPTION | MATERIAL OR NOTE | SPECIFICATION
LIST OF MATERIAL OR PARTS LIST
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.
63 √ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED
TOLERANCES ON:
DECIMALS
ANGLES ±1°
HOLES (DRILL) +.003 -.001
FINISH
HALCYON INC.
501 WANDELL WAY CAMPBELL, CA 95008
DISPLAY-FRONT PANEL (704)
DATE 11MAY77
SIZE D
DRAWING NO. SD-0002-91
SCALE —
SHEET NO —
P 0002-91 | 1 | - | 704A
NEXT ASSY | QTY. NEXT | QTY. FINAL | MODEL NO.


REVISIONS
SYM | DESCRIPTION | DATE | APPROVED
A | INITIAL RELEASE | |
B | REVISED PER ECO #00673 | |
C | REVISED PER ECO #00764 | |
D | REVISED PER ECO #00393 | |
E | REVISED PER ECO #00360 | |
VIEW A-A
PARTIAL VIEW
SCALE: 2 TO 1
TYP S1-S9
(FARSIDE)
(REF)
.80 +.08 -.00
THRU AND THRU
REAR VIEW
INSTALL FROM FARSIDE
INSTALL AFTER WAVE SOLDERING.
4. ■ SQUARE PADS DENOTES CATHODE END OF DIODE, POS END OF CAP, EMITTER OF TRANSISTOR OR GATE OF FET.
3. FOR WIRING LIST SEE WL-0002-91.
2. FOR LIST OF MATERIALS SEE 8000-0002-91.
1. FOR SCHEMATIC SEE SD-0002-91.
NOTES - UNLESS OTHERWISE SPECIFIED:
3 | 2800-0123-00 | 1 | SCREW B.H. 4-40 x
2 | 2800-0032-00 | 1 | WASHER FLAT SL #4
1 | 2800-0128-00 | 1 | SCREW B.H. 4-40 x 9/16
ITEM NO | PART OR IDENTIFYING NO | QTY REQ'D | NOMENCLATURE OR DESCRIPTION | MATERIAL OR NOTE | SPECIFICATION | CODE IDENT
LIST OF MATERIAL OR PARTS LIST
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.
63 FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED
TOLERANCES ON: NOTE 2
DECIMALS
ANGLES ± 1°
HOLES (DRILL) +.003 -.001
FINISH
ED-0003-65 | 1 | — | 704
NEXT ASSY. | QTY NEXT | QTY FINAL | MODEL NO.
UNICON INC 501 YANDELL WAY CAMPBELL, CA 95008
PCB ASSEMBLY
DISPLAY/FRONT PANEL
DATE 5-16-77
SIZE D
DRAWING NO ED-0002-91
REV
SCALE 2/1 | STOCK AS 8000 | SHEET 1 OF 1
DO NOT SCALE DWG

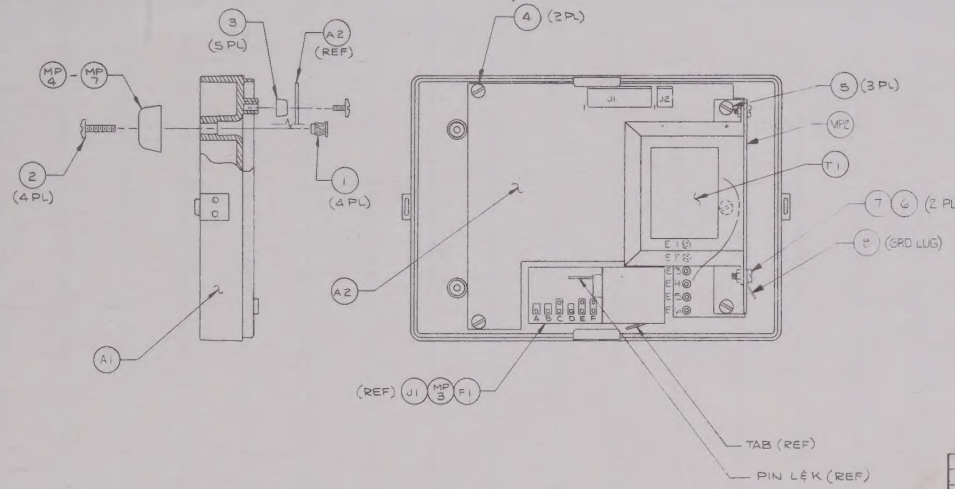
EFFECTIVITY DATE: ALL

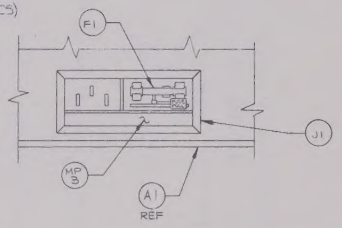
S I N G L E L E V E L B I L L S O F M A T E R I A L

PARENT PART: 8000-0002-91 PCB ASSY-DISP FR PANEL UM: EA PROD CODE: JB ECN: 998 ASSEMBLY QTY: 1
ERC: E SRCE CODE:A TYPE: 1 ABC: A PLAN CODE: P DATE: 00-XXX-00

ITEM NO.	COMPONENT PARTS	ERC	PART DESCRIPTION / REMARKS	PR CO	S C E	T Y P R	A B C	P L N	UM	EXTENDED QTY PER	ECN CHG	START DATE	S/N	CLOSE DATE	S/N
005	1300-0001-00		SPEAKER-8 OHM 20% 1.5 IN LS1	ZZ	P	1	B	P	EA	1.00					
010	1503-0125-00		C-FXD TA 22UF 10% 15WVDC C1,3	ZZ	P	1	A	P	EA	2.00					
015	1504-0073-00		C-FXD AL ELECT 100UF 50V C2	ZZ	P	1	C	P	EA	1.00					
020	1700-0002-91		PCB-FAB-DISP FR PANEL PC1	JB	P	1	B	P	EA	1.00					
025	2100-0002-00		CON-TEST POINT PCB RED TP1	ZZ	P	1	C	P	EA	1.00					
030	2100-0130-00		CON-40 POS DIP SOLDER J1	ZZ	P	1	B	P	EA	1.00					
035	2100-0204-00		CON-TEL JACK 8 CONDOCKT J4,5	ZZ	P	1	B	P	EA	2.00					
040	2101-0000-00		CON-8 PIN IC SCK SKT. 9	ZZ	P	1	C	P	EA	1.00					
041	2101-0000-01		CON-14 PIN IC SCK LO PR J6,7, SKT 12	ZZ	P	1	C	P	EA	3.00		25-OCT-79			
045	2101-0000-02		CON-16 PIN IC SCK LO PR SKT 11	ZZ	P	1	C	P	EA	1.00		25-OCT-79			
050	2101-0008-00		CON-14 PIN IC SCK W/W POST SKT 1-8,10	ZZ	P	1	B	P	EA	9.00		25-OCT-79			
055	2101-0036-04		CONN-MALE PLUG RT ANGL J3	ZZ	P	1	C	P	EA	1.00					
060	2400-0002-00		LAMP-LED RED MINIATURE DS1-8	ZZ	P	1	B	P	EA	8.00					
065	2400-0056-00		DISPLAY-SEVEN SEG. GREEN IC5-8,10	ZZ	P	1	B	P	EA	5.00					
070	2400-0057-00		DISPLAY-SEVEN SEG RED RHD POINT IC2,3,4	ZZ	P	1	B	P	EA	3.00					
075	2400-0058-00		DISPLAY-PLUS-MINUS RED IC1	ZZ	P	1	B	P	EA	1.00					
080	2500-0002-47		CLAMP SPEAKER MP1	JA	P	1	B	P	EA	1.00					
082	3130-4023-00		IC-4023 TRIPL 3IN NAND IC12	ZZ	P	1	A	P	EA	1.00		11-NOV-77			
083	3130-4049-00		IC-4049 HEX INV BUFFR MOS IC11	ZZ	P	1	A	P	EA	1.00		11-NOV-77			
085	3131-0005-00		IC-1458 LINEAR OP AMP DUAL IC9	ZZ	P	1	A	P	EA	1.00					
090	4700-0373-00		R-FXD CC 100 OHM 5% 1/4W R22	ZZ	P	1	C	P	EA	1.00					
095	4700-0381-00		R-FXD CC 220 OHM 5% 1/4W R23,24	ZZ	P	1	C	P	EA	2.00					
100	4700-0387-00		R-FXD CC 390 OHM 5% 1/4W R9,31-34	ZZ	P	1	C	P	EA	5.00		11-NOV-77			
105	4700-0397-00		R-FXD CC 1000 OHM 5% 1/4W R21	ZZ	P	1	C	P	EA	1.00					
110	4700-0413-00		R-FXD CC 4700 OHM 5% 1/4W	ZZ	P	1	C	P	EA	2.00		11-NOV-77			

REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED
A	PRODUCTION RELEASE	11-17-76	DB
B	REVISED PER ECO #00822 PMS	1/20/78	BRB
C	REVISED PER ECO #01000 DW	8-10-78	BP
D	REVISED PER ECO #01027 DW	10-23-78	DW





ITEM NO.	PART OR IDENTIFYING NO.	QTY. REQ'D.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION	CODE IDENT.
8	2802-0022-00	1	LUG-SOLDER			
7	2800-0022-00	2	NUT-KEP 4-40			
6	2800-0124-00	2	SCREW-B.H. 4-40 x 5/16 LG			
5	2800-0431-02	3	SCREW-SELF TAP 6-32 x 3/8 LG			
4	2800-0431-00	2	SCREW-SELF TAP 6-32 x 1/4 LG			
3	2800-8030-00	5	CAPSERT #6			
2	2800-0170-00	4	SCREW-B.H. #8-32 x 3/4 LG			
1	2800-8070-03	4	FASTNER-INSERT #8			

LIST OF MATERIAL OR PARTS LIST

3. FOR LIST OF MATERIALS SEE 8220-1122-25.
2. FOR WIRING LIST SEE WL-1122-25,
1. INSTALL MP2 TO MP1 BEFORE INSTALLING T1.

NOTES- UNLESS OTHERWISE SPECIFIED:

NEXT ASSY.	QTY. NEXT	QTY. FINAL	MODEL NO.
9000-0005-48	1	—	704A
9000-1130-06	1	—	701A

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. DIMENSIONS BEFORE PLATING. BREAK ALL SHARP CORNERS.
√ FINISH ON ALL MACHINED SURFACES EXCEPT AS NOTED
TOLERANCES ON:
DECIMALS
ANGLES ±1°
HOLES (DRILL) +.003 -.001
FINISH: SEE NOTES

HALCYON INC.
501 VANDELL WAY
CAMPBELL, CA 95008

ASSEMBLY- REAR PANEL

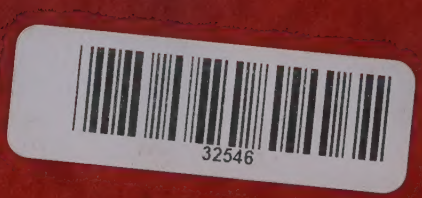
DATE 9JUN76 | SIZE D | DRAWING NO. ED-1122-25 | REV. D
BY
APPROVED
APPROVED
SCALE 1X | STOCK AS 8200 | SHEET 1 OF 1

ACCOPRESS®

25970	YELLOW
25971	BLACK
25972	LIGHT BLUE
25973	DARK BLUE
25974	LIGHT GRAY
25975	LIGHT GREEN
25976	DARK GREEN
25977	TANGERINE
25978	RED
25979	EXECUTIVE RED

GENUINE PRESSBOARD

ACCO
* ACCO INTERNATIONAL INC.
CHICAGO, ILLINOIS 60619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